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Original Communications.

*AN ADDRESS ON EVOLUTION AND THE PATHOLOGICAL IMPORTANCE OF LOWER FORMS OF LIFE.**

By Prof. Jos. Leidy.

GENTLEMEN:—I open my topic with an asseveration from the "Cosmic Philosophy" of that clear thinker, John Fiske, of Cambridge, "There is a Power to which no limit in time or space is conceivable, and all phenomena are but manifestations of that one eternal and infinite power." It is this Power which is everywhere recognized as God, whose existence is proclaimed as the Supreme Truth alike by science and religion.

The genesis or original production of life is directly attributed to God, but the manner of its creation has always been and still remains a mystery. With the introduction on earth of a primitive form, or kind of living being, science is prepared to explain the subsequent production of all others, which, from the remotest period through successive ages down to the present time, have exhibited an infinite number of kinds of the most variable degrees of complexity, culminating in man and his contemporaries. The explanation is found in the doctrine of the evolution of life,

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which is in accordance with the general law of evolution as propounded by that greatest of philosophers, Herbert Spencer. This general law, like that of gravitation, appears to apply to everything, and as the planetary system seems to have been evolved from ancestral nebulæ, so all existing forms of life appear to have been evolved from organic dust, as first clearly set forth by that profound naturalist, Charles Darwin, who has recently left us, we may hope, for a still higher evolution.

According to the doctrine of the evolution of life, living beings have been derived from one another, the most complex and highest forms of plants and animals being the slowly modified descendants of less complex plants and animals, while these were the slowly modified descendants of still less complex forms, and so on until we go back to the earliest and simplest plants and animals.

The agencies by which the process of evolution is carried into effect are of the kind we daily observe in operation around us, as the incessant individual variation in plants and animals, their adaptation to environing conditions, and the hereditary transmission of acquired individual peculiarities.

The prevailing hypothesis of the origin of living creatures in all time, and still maintained by the greater but generally less informed and less thoughtful portion of society, is that each and every species of plant and animal was a special or direct creative act of the Creator. Thus, in illustration, it is considered that each and every species of oak and pine, of fish and bird, was a direct act by which it appeared in space independently of any pre-existing form. Those adopting the law of evolution see in all races of men one brotherhood, while those holding the doctrine of special creations, like the late Prof. Agassiz, are driven to the necessity of regarding each race as a distinct and separate creation.

The first revelation of the law of the evolution of life startled people from a revery. The doctrine for a time was accepted by few, and even reluctantly or with qualification by some of these, but generally it was rejected, pronounced incredible and absurd, and frequently became the subject of ridicule. Many, without reflection, made their feelings an objection to the theory; and even a distinguished professor of the Jardin des Plantes, of Paris, in a public lecture, thought he was using a powerful argument against it when he contemptuously stated that neither he nor his audience wanted an orang for their grandparent.

The reception of new theories, or systems intended to convey general truths, has always been the same, and men never seem to be prepared for any unusual disturbance in the habit of thought. When Newton announced the law of gravitation, people objected to it, for they regarded it as a denial of God's control of the movements of the universe; and when Franklin suggested the use of the lightning-rod, it was denounced as an impious attempt to deprive the Deity of his thunderbolts. Often, to be sure, hasty judgment leads to false theories, but should the theory be true, sooner or later, despite all obstacles, it is accepted and added to the common stock of knowledge.

Time for due consideration and reflection, together with many new observations and discoveries in biology bearing on the subject, tend more and more to confirm the theory of the evolution of life, and I believe the doctrine is now sustained by most distinguished naturalists, and is accepted by a large portion of the educated and thinking community.

While the special creation of living beings cannot be clearly realized in thought, the production of the most complex and highest forms from the lowest and simplest forms, through the slow accumulation of change upon change, and by slow divergences which result from the continual addition of differences to differences, is readily conceivable. In like manner, as we may observe improved and conspicuously marked varieties of useful plants and domestic animals derived from inferior stocks through appropriate management, we can see that under similar conditions the various species of animals and plants now existing may have been derived from nearly allied forms of the age immediately preceding the present age. In this manner, for example, we can comprehend how, by gradual modification, the living species of elephants are the descendants of the nearly allied extinct species; and how our domestic horse and ass are the successors of a three-toed ancestor which has ceased to exist. While such a view of the origin of animals appears probable and clear, it seems impossible to realize how they could come into existence from empty space.

Withal, the law of the general evolution of life is not so extraordinary as is commonly supposed, and is really no more wonderful than the special evolution we observe incessantly going on around us in the develop-

ment and growth of every individual plant and animal. The earliest manifest germ of each seed and egg is a single microscopic cell, from which in a little space of time is evolved each and every form of living being, including man himself. Surely, then, if a single, simple organic cell shall, in the course of a few days, months, or years, result in the production of a moss, an oak, a worm, a fish, or a man, there certainly can be no improbability that a like cell, in the course of untold ages, may have been the ancestor of all existing forms of living beings. The infinite and mysterious power of the Creator is alike manifest in the development of each and every seed and egg, in the evolution of each and every specific form of life, and in the original production of that primitive and lowly form from which all other forms have been derived.

In the production, growth, and development of living bodies, the ultimate chemical elements of structure are derived from the mineral kingdom, where they compose the earth, water, and atmosphere. Living bodies are, however, composed from complex combinations of these elements, which originate in a common material which does not pre-exist in the mineral kingdom. This common material, named protoplasm, is distinguished as the physical basis or substratum of organization. It is a complex definite compound of the gaseous elements of the air and water with the solid elements carbon and sulphur. I repeat that it is nowhere to be found in the mineral kingdom. The skill of the chemist has failed to produce it, and science knows no efficient cause for its production other than God.

The amount of protoplasm required in the construction of organic bodies is enormous, is incessantly consumed in the requirements of life and in the death of living bodies, and is as incessantly renewed. What is the source of all this protoplasm?

Science has discovered the fact that protoplasm is produced under the influence of the solar ray in the green plant, which manufactures it from inorganic elements, chiefly water, carbonic acid, and ammonia. The animal takes no part in its production, but, on the other hand, consumes it, and returns the inorganic elements to their original source. Every tiny chlorophyll ball is a laboratory for the production of protoplasm, starch, and other important organic materials, and thus it is that the bright green verdure of the earth, which so delights the eye, is the common source of the material which is the basis of all organization. Though the sun is distinguished as the source of life, it is only one factor in its production, and would be powerless to this effect without the green plant endowed with special attributes by its Creator. All green plants are immersed in their food, the air, water, and earth, and hence they are commonly fixed or rooted to their place of birth. Animals, powerless to produce the material of their composition, are endowed with locomotive power to enable them to apply to the fixed plant for their food, or to wage war and prey upon one another for the same purpose.

As the only direct source of protoplasm is the green plant, it necessarily follows that in the order of origin this must have preceded the animal, and if we admit the doctrine of the evolution of life, of the highest from the lowest forms, the simplest of green plants is the all-sufficient element for the production of all organic forms.

An ancient and still prevalent doctrine among naturalists, philosophers, and others, holds the theory that the beginning of life proceeded from the waters. The facts of science go to show that the green plant, which in its origin preceded the animal, finds the most favorable conditions for its life in a moist atmosphere and in bright sunlight. Few green plants grow in the ocean waters below one thousand feet, and none below double that depth. In the language of the Bible, after the waters were "gathered together" and the "dry land" appeared, *then* "the earth brought forth grass." This seems better to accord with the condition most favorable to the production, development, and continued evolution of life. At the boundary of the islands or continents, as they emerged from the waters, the earth was maintained in a moist condition by the proximity of the ocean, and there the influence of the sun was all that was required in the production of the material basis of life.

In accordance with the doctrine of the evolution of life and its known conditions, we may reasonably infer that the first living being was the simplest green plant, which also may continue to exist in its original primitive form in our day. The law of evolution does not imply the necessity of change or transformation of the primitive form. While the process may go on under a change of circumstances, and many of the new forms undergo transformation after transformation, advancing in complexity, and acquiring new

habits and capacities, others, from the first, or after more or less progress, may deteriorate, become degraded, or dwindle away and become extinct, while others, again, may retain their original form, or any subsequent one, through all future time.

As illustrations of advancement even to a highly complex organization, and a subsequent retention of the form without manifest change through successive ages, we may refer to the animal lingula, whose remains are found in the Lower Silurian rocks, composed of the sediments of the ocean, and estimated to have been deposited millions of years ago, but which yet lives, apparently unchanged, on our Atlantic shore to-day. Likewise, the roaches and the scorpions of our time have their recognized ancestors in the ancient coal-bearing rocks; and the fish ceratodus, originally made known to us by Prof. Agassiz, from remains in the Jurassic and Triassic rocks, has recently been found, living in the muddy streams of Queensland, Australia.

Among the almost endless variety of living forms now existing is there one which answers all the conditions required by the law of evolution, and which may be recognized as the first-born of creation and that from which all subsequent forms of life have sprung? I repeat that if a single, microscopic cell, the germ of the seed or egg, under the usual appropriate conditions, shall, in the course of a brief space of time, end in the development or production of an oak or a man, there is certainly no improbability that a similar cell may have in the course of ages resulted in the evolution of all existing forms of living bodies.

The first-born of creation, I conjecture, we may recognize in the tiny green plant described by botanists as the protococcus viridis. It grows all over the world in the presence of a certain amount of moisture, warmth, and sunlight; and under these conditions is everywhere observed in shaded places, appearing like a coat of green paint on the north side of tree trunks, rocks, walls, fences, pavements, and the earth. Each individual plant is a single microscopic, spherical cell, enclosing a mass of chlorophyll, and it incessantly and rapidly multiplies by growth and segmentation. Readily detached from its position in the dried state, it is scattered as dust by the winds, and, when deposited in favorable positions, it is instantly restored to activity, and again reproduces itself.

In this most humble of green plants—the protococcus—we have the original type of life, if not actually the first-born of created beings. A simple plant, endowed with the same wonderful capabilities of every seed and egg, it has been the progenitor of all succeeding forms of life, both plant and animal, culminating in man. The suggestion that protococcus is the first-born of created life and the progenitor of all subsequent forms to the highest, will no doubt excite a smile of incredulity; but if we admit the law of evolution of life it cannot be disputed that it is the all-sufficient element in the process. To Raspail, the French chemist, it furnishes the cell with which, if he were supplied, he said he could build up the whole organic world. In the evolution of life, protococcus is the first manifest step which accords with the declaration that "God formed man of the dust of the ground." I may add that in this we may see an illustration that between Science and Religion there is no conflict. It is in the interpretation of facts rather than in the facts themselves that the difference chiefly consists. The shield is altogether of silver or altogether of gold, as it is viewed from the one stand-point or from the other, but, after all, it is the same shield.

In the course of the evolution of living beings, a multitude of inferior organisms have come into existence, which prey upon superior organisms, are more or less hurtful or destructive, and are the chief causes of disease, suffering, untimely death, and decay. In regard to these consequences, Mr. Spencer remarks, that "if, in the uniform working out of the process, there are evolved organisms of low types, which prey on those of higher types, the evils inflicted form but a deduction from the average benefits. The universal and necessary tendency towards supremacy and multiplication of the best, applying to the organic creation as a whole as well as to each species, is ever diminishing the damage done, tends ever to maintain these most superior organisms, which in one way or other escape the invasions of the inferior, and so tends to produce a type less liable to the invasions of the inferior. Thus, the evils accompanying evolution are ever being self-eliminated. Though there may arise the question, Why could they not have been avoided? there does not arise the question, Why were they deliberately inflicted? Whatever may be thought of them, it is clear that they do not imply gratuitous malevolence." (Prin. Biol., i. 354.) Of the inferior organisms which are detrimental to the superior organisms are the numerous animal parasites of other animals,

generally belonging to the class of worms, and called entozoa, from their living within animals, or intestinal worms, from the usual position in which they are found. Frequent and distressing, and often fatal, as are parasitic animals, they are far exceeded in subtle character, and in dangerous and destructive qualities, by the fungi. These are familiarly known as mushrooms, toadstools, moulds, mildew, rust, smut, and rot, and are relegated by the biologist to the vegetable kingdom, though they greatly differ in appearance, habit, and capability from green plants. They neither feed in the same manner as the latter, nor are they direct manufacturers of the chief organic elements. They prey on dead or dying plants and animals and their products; they are the ghouls of the organic world,—thugs concealed in darkness, and ever on the alert to strangle the traveller. As bacteria, they constitute the most degraded forms of living beings, and at the same time are the most potent agents in the production of pestilence, death, and decay.

Until recently fermentation and putrefaction were considered to be due to the exposure of organic substances to the combined influence of moisture, warmth, and air, but it has now been determined that the direct agents in these processes are microscopic fungi floating in the atmosphere, and that they will not occur without the presence of these organisms. Ordinary fermentation, as in the production of beer, wine, and other spirituous liquors, is due to the growth and reproduction of the yeast-fungus, saccharomyces, which decomposes the sugar present in the vegetal juices and converts it into alcohol and carbonic acid. The souring of fermented products, and their further changes, are due in like manner to the presence of other fungi. The putrefaction of meats, with its attendant disagreeable odors, is caused by the bacterium termo, and does not take place when access of this fungus is prevented. The decay of wooden buildings and other structures of timber is ordinarily due to fungi, commonly known as "dry rot," and consisting of species of merulius and polyporus. The blights, mildews, smuts, and rusts which are such enemies to the agriculturist, destroying his grain, fruit, and other vegetal products, are all fungous parasites.

Most wonderful and frightful is the power for evil of these corsairs in the sea of life. Differing in well-marked and decidedly important characters from green plants on the one hand, and animals on the other hand, they may be regarded as forming a third and distinct kingdom of organic bodies. Only lately we have learned of a new phase in their career in relation to green plants, not destructive as usual, but in habit reminding us of the system of slavery previously observed only with man and certain species of ants. The researches of botanists now make it appear that the group of plants named lichens, those dry, gray crusts and threads which grow on the dead bark of trees, old timbers, rocks, and otherwise sterile grounds, are parasitic fungi, which entrap green algæ, like protococcus, and hold them in their toils while they feed on the products of their labor, the enslaved algæ in the mean time pursuing their ordinary course, and multiplying, as formerly among our own kind did the slave families of men.

Aside from the too familiar fact that man and other animals are infested with entozoa which produce more or less inconvenience and distress, and frequently disease ending in death, it has been made obvious to us in our time that more serious and wide-spread diseases are due to fungous parasites. Indeed, it is now the prevailing idea that most if not all infectious and contagious diseases are of parasitic origin. Various forms of microscopic fungi, of the order of bacteria, exemplified by the genera micrococcus and bacillus, have been discovered to be constant attendants on such affections, and in many instances have been demonstrated to be the agents by which the diseases are conveyed.

Louis Pasteur, the renowned French chemist and skilful investigator, on whom the eyes of the whole world are now directed on account of the thoroughness and success of his researches into the causes and prevention of some of the gravest diseases which afflict our race, declares that it is in the power of man to completely sweep parasitic diseases from the face of the earth. Perhaps the declaration may be too strong, yet it seems that the demonstrated facts are already sufficient to make us hopeful that we are on the threshold of discovery, by which we shall be enabled to bring the agencies of these diseases so far under control as to render them of no greater detriment than the ordinary accidents to which we must always be more or less liable.

A few significant facts may be mentioned in evidence that our expectations and hopes are neither visionary nor even exaggerated.

Only fifty years ago nothing was positively known as to the manner in which man and inferior animals became infected with para-

sitic worms. While the conviction of many was that all forms of living things were derived from parents, as expressed in the axiom *omne vivum ex ovo*, others openly or tacitly admitted their existence as evidences of the hypothesis of spontaneous generation. Well do I remember the time when an able teacher expressed the opinion that a shred of fibrin or mucus under certain morbid conditions might be transformed into a tapeworm; and another considered that maceration in water was sufficient to convert a horse-hair into a hair-worm or gordius. Since then many able investigators have most indubitably proved the doctrine that all organic forms, the simplest as well as the most complex, originate alone from parents. We have learned that parasitic worms, like ordinary insects, flies, butterflies, and beetles, pass through entirely different forms in different stages of their life, and that the different stages are passed in different animals into which they gain access through the food and drink. With these discoveries we have also learned the sure method of controlling and preventing the invasion of parasitic worms. By the proper cooking of food and the boiling or filtration of drinking water any parasites which may be present are destroyed, or prevented from entering the person they would otherwise infest. Man, perhaps unintentionally, has been freer from parasitic worms than most other animals, from the peculiar habit of using fire in the preparation of food, though he is often yet too careless in the employment of this agent, and thus frequently becomes the host of disagreeable or dangerous guests introduced through half-cooked meats.

I recall to mind an occasion upwards of forty years ago, while I was a student assisting my preceptor, Dr. Goddard, then demonstrator of anatomy in the University, and prosector to Prof. Horner. We were making preparation for a lecture on the muscles, when Dr. Goddard, who was endowed with quick perception and sharp vision, observed an appearance in the flesh which led him to examine it with the microscope. In it he found a number of minute, coiled worms, to which he called the attention of Prof. Horner. The parasite had been discovered a short time previously by the English surgeon, Sir James Paget, and was described by Prof. Owen, with the name of trichina spiralis. Several years later I found the same parasite in pork. Then, and for some time subsequently, no significance was attached to the occurrence of trichina as a parasite, and if you will refer to any medical dictionary published twenty-five years ago, you will find the worm mentioned, but no intimation of its relation to a grave disease which has since been recognized, but was then not even suspected. Now we are well informed of the parasitic affection trichinosis, caused by trichina, introduced into our body in pork, a meat which was declared to be unfit for food, thousands of years ago, by the great law-giver Moses. While trichina has been dealing death and destruction to our kind from the most remote times, until recently its existence was unknown, but having discovered it, we are now able to prevent its effects. As an example of its dangerous character, in a recent statistical account of trichinosis in Saxony, we read that in fifteen years, from 1860 to 1875, there were 39 epidemics of the affection, and 1267 cases with 19 deaths. We now have the trichina completely under control, and no one need run the risk of infection. By thoroughly cooking pork any parasites that may be present will be destroyed, and thus prevented from doing injury, and it may be added that by the process of cooking the pig ceases to be unclean food. The relation of such facts need and should not prejudice you against the use of pork as food, for all animals employed for the same purpose are likewise liable to be infected; but the cardinal rule should be observed that all meats, or such especially as have been recognized or are suspected to be liable to harbor troublesome or dangerous parasites, shall be cooked, by which process the parasites are rendered innocuous. Fire is the great purifier of food and water, and if it could be as readily applied to the air we breathe, we would in a great measure be able to get rid of all parasitic affections.

After the researches of Schwann and Pasteur had clearly proved that bacteria were the cause of putrefaction, Joseph Lister, the distinguished English surgeon, was led to regard the same organisms, introduced into wounds, as the cause of mortification, which so often defeats the object of the most skilful operator, and frequently destroys the patient. In this view he devised means for preventing the access or destroying these destructive organisms, and thus established that antiseptic system of surgery which is, as remarked by John Tyndale, one of the greatest and most beneficent achievements of our age.

In 1853 the silk-culture of France in value was estimated at twenty-five million dollars, but, as the result of a malady which affected the silk-worm, in two years afterwards fell

to five million dollars. Pasteur, having been requested by the Minister of Agriculture to undertake the investigation of the disease, which is called pebrine, determined it to be due to an exceedingly minute fungus parasite, a species of micrococcus. He proved that the germ might be present in the worm and in the egg and yet elude the search of the microscope. In the moth the fungus reaches a degree of development so distinct as to render its detection inevitable. From healthy moths, healthy eggs were sure to spring, and from these vigorous worms; and thus, by making the proper selection, the problem of restoring to France its former prosperity in silk husbandry was established.

In his researches on pebrine, Pasteur inquired how the disease was spread, and pursued the inquiry in the only manner that was open to him. He infected healthy worms, by smearing mulberry-leaves, their food, with material containing the fungus. He also infected them by inoculation, showing how they infected one another by scratches of their claws. Bringing together healthy and diseased worms, the healthy ones, like their smitten companions, soon sickened and died. He produced infection at a distance by wafting the fungus dust through the air. All the modes by which infectious diseases may be spread among human beings were thus illustrated. Here, I may add, we have also an illustration of the benefit that is to be derived from judicious experiments on living animals. Admitting that it was for the moment cruel to treat the healthy silk-worms in this fashion, it is clear that Pasteur's investigations swept a deadly epidemic from the soil of France, and for the units slain during the experiments millions have been preserved.

Splenic fever, or anthrax, an extremely fatal affection of cattle, was determined by the celebrated German physician, Dr. R. Koch, to be due to a bacterial parasite, the bacillus anthracis. Pasteur being led to investigate this disease has also discovered the means of preventing it. This is done by inoculating the animals liable to infection with a liquid containing the bacillus, which, by a process of treatment, has lost its virulence, and yet enables the animals inoculated to effectually resist the attacks of its more potent parent.

Hog and chicken cholera, equally destructive to the animals affected, have also been ascertained to be caused by similar bacterial parasites, and are now successfully treated in the same manner.

A micrococcus is the constant associate and cause of smallpox, and, as is well known, this dreadful disease has for a long time been in a great measure prevented by vaccination. In this treatment the same parasitic organism renders powerless the venom of its parent. Last, and not least, we now receive daily notices that that fearful malady, hydrophobia, also reputed to be caused by a bacterial parasite, has been brought under control by the great Pasteur.

Gentlemen, those of you who have chosen the responsible calling of the physician, and are now each of you, by title, doctor in medicine, we, your teachers, this day bear witness, before the trustees of the University and our fellow-citizens here assembled, that you are duly qualified to enter on the duties thereto belonging. By this calling you engage to take charge of the health of the community, to treat diseases and remedy accidents, or alleviate their pain and distress, and to save your fellows from untimely death. For this you are to expect and should receive due compensation for your services, or, in other words, you will practise your profession as a livelihood. Bear in mind, however, that it is not for this alone you are to labor, for the principles of the medical profession require you to do all in your power to promote the general health of society, even though there be no expectation of return other than that which arises in the common welfare. To the extent of your ability you should also exert yourself in the investigation of diseases with the view of preventing them. To no profession so much as ours does the altruistic sentiment apply, "Love thy neighbor as thyself;" and it is with a feeling of pride that I express the belief that no profession more than ours lives up to this precept, for no body of men are more self-sacrificing for the good of others than are physicians. Statistics show that the war against disease is attended with no trifling risks, and that those who fight this battle are exposed to chances of death above those incurred by nearly all their fellows. In the conviction that you are prepared to assume the duties and responsibilities of the medical profession, I would urge you to emulate its great spirits, its zealous workers, and its earnest searchers after truth and the common good of mankind.

It has mainly been under the advice and guidance of the medical profession that governments, societies, and benevolent citizens have established and supported hospitals and other asylums for the sick. Still further to

promote the health and common welfare, I feel that it is incumbent on us to advise and urge our government to appoint and maintain a sufficient corps of the most able physicians and skilful observers and experimenters, whose function it shall be to investigate all the causes of epidemic, contagious, and infectious diseases which affect man, domestic animals, and useful plants, with the view of determining means for their destruction or for preventing their action. Something, to be sure, has already been done in this way, and with such conspicuously beneficial results that we are encouraged to further effort to the utmost in the same direction. Until recently almost nothing was done to ascertain the causes and mode of prevention of diseases, and it was and still is customary to await their attacks, and then depend on drugs to exorcise them. Posterity, I apprehend, will look back with wonder at our apparent apathy and neglect in awaiting the invasion of epidemics and at our faith and dependence on the fetiches of medicine to destroy them.

On this theme I would like to dwell and say more, but our time is short and I must forbear.

THE RED SULPHUR SPRINGS, MONROE COUNTY, WEST VIRGINIA.

By Henry B. Millard, M.D., A.M., New York.*

I AM prompted by the perusal of an article on these springs, by Dr. L. B. Anderson, which appeared in the April number of the Therapeutic Gazette, to add some opinions and experience of my own relative thereto. Medical hydrology is as yet, with us, in a very primitive stage, and I regard with interest all writings calculated to develop it, to elevate to its true position the "cure" by mineral waters, and to throw light upon the real character and value of our mineral springs, many of which are but imperfectly known and understood.

These springs according to the analysis of Dr. A. A. Hayes, late assayer and chemist of Massachusetts, belong to that class of waters known, according to the French classification, as sulphuretted calcic, the other forms of sulphur water being the sulphuretted sodique, the chloride and sulphuret of sodium, and the sulphuretted hydrogen. The waters of Aix-les-Bains, in Savoy, belong to the same class as the Red Sulphur Springs, and have much in common with them. Enghien, near Paris, and Schinznach, Switzerland, may be also cited as good examples of this kind of waters. They are of special use in inveterate rheumatic affections with fibrinous anchylosis, in muscular rigidity, and in neuralgic and paralytic affections having a rheumatic origin. This class of sulphur waters is likely to be prejudicial in organic visceral affections, as cirrhosis of the kidneys or liver, or in rheumatic or neuralgic conditions characterized by the uric acid or gouty diathesis; this class of cases, when requiring sulphur water, being more likely to be helped by a chloride and sulphuret of sodium water, such as Aix-la-Chapelle, or a sulphuret sodium water, as Cauterets.

My principal object, however, in writing this article, is to call attention to the existence of a peculiar sulphur compound, combined with organic matter, retained in solution in the water, but made jelly-like by the air or acids. There are about seven grains of this substance to the gallon. According to Dr. Hays, "it seems to be an azotized base combined with sulphur, and so combined as to neutralize the distinctive characters of sulphur.

"No trace of uncombined sulphur can be found in its fresh state, and when I fermented it, hydro-sulphuric acid was the form it appeared in. I deem this a very important distinction in a medical point of view, and incline to the opinion that *all the sulphur in this compound is in a state fitted to be absorbed in the animal system*, as no other known solution of powder of sulphur is, excepting, perhaps, hydro-sulphuric acid.

"The chemical history of the sulphur compound shows that, like yeast, it has the power of inducing changes among the constituents of another body like those it is itself undergoing."

These unanalyzable organic compounds with sulphur are met with in all of the Pyrenean sulphuret of sodium waters, particularly in those of Barèges, where it is known as *barégine*, or *glairine*. According to Dr. Grimand (*loc. citat.*), ex-medical inspector at Barèges, "its quantity is almost always in proportion to the quantity of sulphurous principles. It presents the aspect of a gelatiniform organic substance, held in solution in the mineral water, and gradually becoming, on exposure to the air, of a jelly-like consistence. It forms in the basins and conducting pipes gelatinous masses, unctuous to the touch, which become rapidly putrid in the air, producing algæ of a particular nature (*sulfa-*

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raire). This *sulfaraire* is an organized, living being, a vegetable confervoid. Under the microscope it shows filaments of extreme tenuity, $\frac{1}{400}$ of a millimetre. These filaments are so many cylindrical tubes containing semi-opaque, globular corpuscles. Barègine exists in considerable amount in the waters of Barèges. It is to this that is due the peculiar unctuous feeling that patients compare to velvet; it possesses typical sedative properties, whose full therapeutic value has yet to be known."

Next to Barèges, this substance is found most abundantly in the waters of Cauterets, Eaux-bonnes, and St. Sauveur.

Now the practical part of all this is, that we have, I believe, in the Red Sulphur Springs, a water equally valuable in throat and bronchial affections with the famous waters of Cauterets and Eaux-bonnes, as well as being of equal value in many rheumatic, cutaneous, and neuralgic disorders. The waters of Cauterets, especially, have been unrivalled in the relief of follicular pharyngitis, in affections of the bronchial mucous membrane, in chronic laryngeal affections, chronic catarrhs, etc. Many thousands resort to them yearly. As I passed a month there, I had many opportunities of observing the beneficial effects of the waters. A number of my patients, some of them eminent professional singers, suffering from chronic throat and laryngeal troubles, whom I have sent to Cauterets, have been greatly relieved or cured. Many of my patients suffering from dartrous affections of the skin, or from rheumatic ailments, have been greatly benefited there.

Several years ago, on endeavoring to find at home some springs to which I could send certain patients, suffering from affections of the throat, who would not go abroad, I observed, in consulting Dr. Walton's work on the mineral waters of the United States, the similarity of the waters in question with certain of the foreign springs, and concluded they should prove equally efficacious in the same class of cases. I recommended, in the summer of 1884, a young lady to try the Red Sulphur Springs. Her trouble was laryngitis and pharyngeal and nasal catarrh, with a good deal of bronchial catarrh. One summer at the springs effected more benefit than had been accomplished by two years of treatment. Another young lady, suffering from chronic bronchitis with profuse mucous exudation, was equally benefited. These are the only two cases that have come under my personal observation. Of the efficacy of these waters in pulmonary troubles I am unable to speak. My familiarity with the effects of the waters of Cauterets, Eaux-bonnes, Aix-les-Bains, etc., and their similarity in many respects to these, leads me to believe that we should find in them, *so far* as the waters are concerned, the same benefit in affections of the respiratory mucous membranes, in pharyngeal and nasal catarrhs, in chronic rheumatism of a certain type, and in dartrous affections of the skin. I say, "so far as the waters are concerned;" the Pyrenean springs have the advantage of a high altitude, Barèges being four thousand and Cauterets more than three thousand feet above the sea-level, and consequently combine the very important therapeutic properties of pure mountain air (the Red Sulphur Springs have an elevation of only thirteen hundred feet), and all the foreign localities I have mentioned have the very great advantages of splendid bathing-houses, arrangements for treatment by atomization and inhalation, excellent hotels, salubrious situations, and, not least, medical men of scientific ability and great experience, who give the cases of patients careful attention and consideration.

At Barèges, a small town of one hundred houses, there are every season seven thousand patients; at Cauterets and at Aix nearly three times that number. At many of our mineral springs at home where I have sent patients, the medical care has been quite indifferent and insufficient, and not to be compared with the care which patients receive at similar resorts abroad. This state of things is perhaps to be expected until our springs are better known, and until the "cure" by mineral waters receives with us the same consideration that it receives abroad. The domain of treatment by mineral waters has a legitimate existence, and I hope it will be enlarged and regarded by us as of more importance in the future.

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*ON THE VALUE OF THE OIL OF EUCALYPTUS IN SOME MALARIAL AFFECTIONS.**

By J. H. Musser, M.D., Philadelphia.

FROM time to time claims of a flattering character have been made by various clinicians for the antiperiodic virtues of the oil of eucalyptus. The high standing of the

* Read before the Philadelphia County Medical Society, May 24, 1886.

authorities compels us to accept their statement unless we can disprove them by clinical research. The following notes aim to be a statement, as well defined as circumstances admit, of the experience of the writer in the use of this drug in malarial affections. They embody an account of its effects not only in true intermitting fever, but also in the modified forms of the disease which are so commonly observed in this city.

Intermitting Fever.—Care was taken to eliminate all forms of paroxysmal fever not of malarial origin. The cases selected for treatment, therefore, to make the diagnosis more certain, were of those which had had a previous history of ague, those which presented themselves for treatment during the season ripe with malaria, those which lived in pronounced malarious localities, and which presented the organic lesions of intermitting fever,—enlargement of the spleen and blood impoverishment.

Twenty-eight cases, selected in accordance with the above statement, were treated. Of the twenty-eight cases, nine were cured, ten not cured, five were relieved, but other drugs used in addition to eucalyptus, and five did not report a second time.

Tables I. and II. represent respectively the cases benefited, and the cases that were not relieved or cured. On them the type of the disease, its duration prior to treatment by eucalyptus, the length of time the case was under observation, the season the attack developed, the residence of the patient, and some remarks are detailed.

Analysis of Table I.—Number of cases, nine. Type: Quotidian, one; tertian, five; quartan, one; irregular, two. Acute attack (under six months), five; chronic intermittent, four. Length of time under observation, ten days to six months. All the attacks developed in the usual malarial season. Seven of the persons resided in a positively well-known malarial locality.

It is a misfortune that some of the cases were under observation so short a time. It is fair to presume Cases Nos. 1 and 2 (acute attack, children) were cured. They were under observation only ten days, but lived so near the hospital they would certainly have returned had a relapse occurred. Case 7 returned three months afterwards for another complaint, and Case 8 returned six months subsequently for more of the medicine that cured her before. The remaining cases were from eleven days to three months under observation. At the risk of wearying you the abstract of Case 5 will be given. It was one of the most striking of the cases, and the gratitude exhibited by the patient was impressive to the clinical class in the dispensary. The patient was a female, æt. 30, who resided in a malarious locality. She had been confined one year previous to her visit. In the second week of her convalescence a tertian intermittent developed. It had continued ever since then unless the patient was under the profound influence of cinchona. Her spleen was enlarged. She was ordered ten drops of the oil of eucalyptus four times daily. The treatment was persisted in. She remained under observation two months without any recurrence of the malarial symptoms. It is to be regretted no note was made of the spleen some time after treatment had begun.

Reference to the table will show that three of the cases had been treated with quinine, and that relapses occurred, subsequently controlled by the oil. "Cured" must not be used in a final or absolute sense, however. From the fact that sometimes any remedy will beneficially influence an ague, especially if a purgative or some dyspeptic elixir be given conjointly, we cannot be imperious in our sanction of the value of a drug. Likewise an attack of intermittent will cease of its own accord, especially if certain extraneous conditions, as a bad state of the weather, or relief from mental strain, or what not, be removed; such an attack may recur, when unfavorable conditions arise again. It cannot be said in any of the above cases that relapses did not occur, while they are noted to have recurred in two instances.

It is proper to state that to all the cases in the table a mercurial and saline was exhibited, with the exception of Cases 1 and 2.

But little need be said of Table II., representing the series unrelieved by eucalyptus. One was quotidian, seven tertian, and two irregular in type. Six of the cases were chronic, three acute, and one unknown. Four of the chronic cases continued to live in the malarial localities; two removed therefrom. The cases were under treatment but a short time. As soon as the drug was seen not to control the fever, other remedies were resorted to. Possibly, had the drug been continued for a longer time, or the dose increased in size or frequency, a different result might have been attained.

In addition to cases of true intermitting fever, the oil of eucalyptus was administered to a class of cases, constantly brought to our notice, which present varied general symp-

toms, irregular febrile invasions, gastro-intestinal disorder, and neuralgias, but which show a decided periodicity. Care was used in the selection of these cases also, and the same conditions required as in intermitting fever, and in addition thereto the presence of the periodical element, which, however, is often misleading, was insisted upon. The cases which are arrayed in Tables III. and IV. are instances in which we would without hesitation give quinine and its congeners. It is with considerable misgiving, however, that we report them, knowing so well the doubts that can be placed about each case.

Forty-four cases in all were thus selected. Twenty-six cases did not report for treatment a second time, and hence will have to be excluded. It is fair to presume, however, that some were benefited, for after the lapse of six months or more a few returned for other affections, and said they had been benefited. Of the remaining eighteen cases, fourteen were relieved and four not relieved. The fourteen that were relieved were under observation from five days to one year. Eight of them were treated during a period less than twenty days; the remainder were under notice a long time for other disorders that developed subsequently to the malaria. A reasonable amount of doubt might be thrown around the eight cases, and therefore, after carefully selecting the cases, and including only those that had been under observation twenty days or more, six cases, or thirty-three and one-third per cent. of the entire number, were cured of their malarial affection. It is worthy of note that in the cases not benefited by eucalyptus the diagnosis was more doubtful than in any other cases.

The oil, which is quite distasteful, may be administered in capsules, in emulsion, or in glycerin. Most of my patients have taken it on a lump of sugar. Ten drops is usually administered to adults, three or four times daily. I am inclined to think small doses, three or five drops, repeated oftener, would be of more service. In one patient an intolerable nausea was produced; in another, an attack of diarrhœa developed subsequent to the administration of the oil.

In spite of the scepticism that naturally surrounds this subject, we are forced to conclude that the oil of eucalyptus is of material value in malarial affections, and in cases where quinine is, on account of idiosyncrasy, inadmissible, the drug may be relied on in nearly one-third (thirty-three and one-seventh per cent.) of all the cases of true intermitting fever, and in fully one-third of all cases of vague malarial intermittent affections.

Conclusions.—From the above studies it will be seen,—

1. That the oil of eucalyptus is of decided value in about thirty-three and one-third per cent. of all cases of intermitting malarial fever.

2. That it has no specific value in any one type of the disease.*

3. That the longer the duration of the disease, the less liable is it to do good.

4. That relapses are not prevented by it.†

5. That its influence on the spleen has not been demonstrated.

6. That a dose of ten drops four times daily has been a sufficient dose, but that five drops every three hours would be of greater value possibly.

7. That good results are not attained as quickly as by large doses of quinine, but that a good effect should be observed within five days at least.‡

* It failed in one case of puerperal malarial fever; it was not tried in remittent or continuous malarial fevers.

† One of my private patients, who contracted intermittent fever in the South, and had very frequent relapses in the North, in spite of quinine, has not suffered a relapse since taking eucalyptus three years ago.

‡ Dr. Hunter Robb, of this city, writes me he contracted intermittent fever along the Delaware River, and has had frequent relapses, all of which have been controlled quickly and effectually by eucalyptus. He experiences the same physiological effects with eucalyptus as he does with quinine.

TABLE I.—*Cases of Intermittent Fever benefited by the Oil of Eucalyptus.*

Type.	Duration prior to treatment.	Length of time under observation.	Season attack developed.	Residence.	Remarks.
1. Quotidian.	3 weeks.	10 days.	Summer, 1883.	Malarious region.	Girl, æt. 10; treated with quinine first, with relapse; gtt. v every 3 hours.
2. Tertian.	1 week.	10 days.	Summer, 1883.	Malarious region.	Girl, æt. 12; sister of No. 1.
3. Quotidian at first, now quartan.	Several months.	16 days.	Fall, 1882.	.....	Male, æt. 23; relapses after quinine; gtt. xx t. d. caused nausea.
4. Tertian.	6 months.	15 days.	Fall, 1882.	.....	Male; gtt. xx t. d.
5. Tertian.	1 year.	2 months.	.....	Malarious region.	Female, æt. 30; followed confinement; quinine constantly prevented parox.; enlarged spleen.
6. Quotidian, then quartan, finally irregular.	4 months.	1 month.	Fall, 1883.	Malarious region.	Male, æt. 23; gtt. x t. d.; enlarged spleen.
7. Tertian.	4 years.	15 days.*	.....	Malarious region.	Female, æt. 24; gtt. x 4 times daily.
8. Tertian, then irregular.	Every fall for 3 y'rs.	5 days.†	Autumn, 1880.	Boatman; malarious region.	Male, æt. 37; gtt. x t. d.
9. Tertian.	4 years.	11 days.	Spring, 1880.	Malarious region (N. 45th St., Philadelphia).	Female, 24; gtt. x t. d.

* June 29 to August 15; reported October 30 cured.

† November 2, 1883, to November 7, 1883; returned next June for some medicine; did not report again.

TABLE II.—*Cases of Intermittent Fever not benefited by the Oil of Eucalyptus.*

Type.	Duration prior to treatment.	Length of time under observation.	Season attack developed.	Residence.	Remarks.
1. Irregular.	Several years.	42 days.	.....	.....	Eventually cured by quinine and arsenic; male, æt. 35.
2. Tertian.	3 years.	6 days.	.....	Malarious region.	Male, æt. 14; quinine after euc.; spleen enlarged; anæmic.
3. Quotidian.	.....	5 days.	Autumn, 1885.	Malarious region.	Male, æt. 35; quinine after euc.; spleen enlarged.
4. Tertian.	Several years.*	4 months.	.....	Malarious region (river).	Male, æt. 50; persistent use of euc. failed to check.
5. Irregular.	2 years.†	3 months.	.....	Malarious region; same residence as above; along low stream.	Female, æt. 48; euc. checks, but not as well as quinine.
6. Tertian.	6 years.	6 months.	.....	Acquired along Susquehanna.	Male, æt. 38; seemed to modify but not control.
7. Tertian.	10 days.	10 days.	Summer, 1883.	Malarious region.	Female, æt. 35; quinine afterwards.
8. Tertian.	6 weeks.	7 days.	Fall, 1883.	Contracted along Susquehanna.	Male; after 7 days' use of euc. resorted to quinine.
9. Tertian.	2 years.	24 days.	.....	.....	Female, æt. 24; relieved by Fowler's solu.
10. Tertian.	3 months.	7 days.	Fall, 1884.	Malarious region.	Male adult; euc. replaced by cinchona.

* Every spring and fall.

† In wet seasons.

TABLE III.—*Cases of Vague Intermittent Malarial Affections benefited by the Oil of Eucalyptus.*

Type.	Duration prior to treatment.	Length of time under observation.	Season attack developed.	Residence.	Remarks.
1. Quotidian.	.....	11 days.	August.	23d and Callowhill Sts. (labored in swamp).	Male, æt. 38; periodical headache, with dulness and stupor; "bruised" limbs; poor appetite; dyspepsia; diarrhœa; poor sleep; night-sweats.
2. Quotidian.	4 months.	5 days; reported again in 1 year.	June.	Camden, N. J.	Chills daily; quinine; relapse every 14 days; dyspesia; regular bowels; euc. prevented relapse and improved digestion, etc.; male, æt. 33.
3. Tertian.	Some weeks.	14 days.	June.	Jenkintown, Pa.	Tired, aching, drowsy, headache every second day; dyspepsia; constipation; euc. gtt. x 4 times daily; female, æt. 28.
4. Quotidian.	5 days.	5 days.	July.	40th and Mount Vernon Sts., West Phila.	Chilly and feverish; dull, aching headache; dyspepsia; euc. 4 times daily; male, æt. 29.
5. Quotidian.	.....	30 days.	July.	15th and Brown Sts.	Dull headache periodical, with general symptoms; relieved by arsenic; relapse; euc. gtt. x t. d.; male, æt. 21.
6. Tertian.	3 weeks.	6 days.	August.	31st and Page Sts.	Coldness, followed by fever; headache; good appetite; constipation; euc. gtt. x; male, æt. 39.
7. Quotidian.	2 weeks.	8 days.	August.	29th and Alter Sts.	Chilliness, fever, and sweat at first; no appetite; bowels regular; feverish every day; drowsy, dull, general aching; euc. gtt. x t. d.; male, æt. 13.
8. Quotidian.	6 weeks.	6 days.	August.	32d and Sansom Sts.	Periodical neuralgia, and general pains and aching; dyspepsia; euc. gtt. v t. d.; female, æt. 16.
9. Quotidian.	4 months.	5 days.	August.	Chester, Pa.	Chill, fever, and sweat at first; now cold and feverish, with debility and dyspepsia; male, æt. 63; euc. gtt. x t. d.
10. Quotidian.	5 weeks.	20 days.	August.	34th and Race Sts.	Neuralgic headache after 4 P.M.; dyspepsia; general aching; female, æt. 24; euc. gtt. x t. d., and acid. phos. dil.
11. Quotidian.	.....	28 days.	August.	Longshoreman.	Evening headaches; dyspepsia; regular bowels; general aching; male, æt. 52; euc. gtt. x t. d.; headache cured, and then added acid. phos.
12. Quotidian.	.....	.....	September.	.....	Male, æt. 38; "dumb ague."
13. Quotidian.	Several months.	29 days.	June.	20th St. and Montgomery Ave.	Chilly sensations and fever; dyspepsia and constipation; reported "a new woman;" constipation not relieved; female, æt. 45; euc. gtt. x 4 times a day.
14. Quotidian.	.....	24 days.	July.	15th and Brown Sts.	At first tertian; now chilly every day, and at 4 P.M. headache; ravenous appetite; constipation; dyspepsia; male, æt. 21; improved; relapsed in a few months; euc. repeated; did not report second time.

TABLE IV.—*Cases of Vague Intermittent Malarial Affections not benefited by the Oil of Eucalyptus.*

Type.	Duration prior to treatment.	Length of time under observation.	Season attack developed.	Residence.	Remarks.
1. Tertian.	A few weeks.	5 days.	August.	Labors along river at oil-works.	Periodical neuralgia; general pains and aching; dyspepsia; constipation; male, æt. 31; euc. gtt. x t. d.
2. Tertian.	5 weeks.	6 days.	September.	1447 Marshall St.	Chill two weeks ago; periodical headache since, with general symptoms; male, æt. 38; euc. gtt. x t. d.
3. Irregular.	4 months.	19 days.	September.	21st and Lombard Sts.	General symptoms and periodical headache; no ambition; male, æt. 34; euc. gtt. x t. d.
4. Irregular.	.....	12 days.	September.	24th and Callowhill Sts.	Periodical headaches, dyspepsia, etc.; euc. gtt. x 4 times a day; female, æt. 35.

ON THE MEDICINAL VIRTUES OF ICHTHYOL.

By Dr. Joseph Schmidt, Berlin, Germany.

THE brief but favorable editorial remarks concerning ichthyol contained in the April issue of the Therapeutic Gazette have been the inducement to present to the readers of this widely-circulating journal the following essay, with the view to introduce to the American practitioner a remedy which may be justly regarded as a welcome acquisition to our therapeutical treasures. The high and manifold remedial virtues inherent to ichthyol, according to the clinically established testimony of authoritative voices from the German profession, suffice to protect this new medicament from the ephemeral fate in which the majority of novel remedies deservedly perish. It is rather a singular fact that the numerous preparations of ichthyol, which have been exhibited and prized by German practitioners for the last three years, could remain practically almost unknown in America.

I now beg to submit an exposition of the most salient physical, chemical, and physiological features of ichthyol, and to add to the hitherto gathered results of its clinical trials some personal observations of its therapeutic value.

Literature.—The literature on ichthyol is necessarily scanty, as can be expected in view of the recentness of its introduction into therapeutics. Save some promiscuously scattered journalistic notes, the following treatises alone invite our interest:

1. Prof. Baumann and Dr. Schotten, in the *Monatschrifte für Praktische Dermatologie*, 1883, Heft 9.

2. Dr. Unna, in the same journal, 1882, Nos. 11, 12; in the *Deutsche Medizinal Zeitung*, 1883, No. 17; in the *Sammlung Klinischer Vorträge*, Leipzig, 1885, No. 252, page 2287; and in the *Aerztliche Vereinsblatt für Deutschland*, 1885, No. 158.

3. Dr. Lorenz, in the *Deutsche Medizinische Wochenschrift*, 1885, No. 23, and in the *Deutsche Militärärztliche Wochenschrift*, 1885 (Mittler, Berlin).

4. Dr. Ackermann, in the *Correspondenzblätter des Allgemeinen Arztlichen Vereins von Thüringen*, 1885, No. 8.

5. Prof. Binz, at the Fourth Congress of Internal Medicine in Wiesbaden, April 8 to 11, 1885.

6. Dr. v. Hebra, in *Die Krankhaften Veränderungen der Haut*, Vienna, 1883.

Physico-Chemical Properties.—Ichthyol, or fish-oil (ἰχθυς—ὀλεῖον), was first prepared by Schröter, a chemist of Hamburg, and represents the distillation product of a peculiar bituminous sulphurous mineral obtained from the deposits of fossil fish. According to Baumann and Schotten (*loc. cit.*), ichthyol, or the ichthyosulphate of sodium, has the following composition:

Carbon	55.05 per cent.
Hydrogen	6.06 per cent.
Sulphur	15.27 per cent.
Sodium	7.78 per cent.
Oxygen	15.83 per cent.
	99.99 per cent.

Its chemical formula is $C_{26}H_{36}S_2Na_2O_6$.

Ichthyosulphate of sodium is obtained by the action of concentrated sulphuric acid upon the distillation product of the mineral and subsequent neutralization with sodium. The specimen at my disposal presents a tar-like appearance and odor, an alkaline reaction, and the consistency of vaseline. The drug is perfectly soluble in water, partly so in ether or alcohol, but readily soluble again in ether and alcohol combined; with fats and vaseline it can be incorporated in every desired proportion.

Its sulphurous constituents belong partly to the sulpho group, and are partly attached to the carbon. As the sulpho acids exercise themselves little or no action on the animal organism, the therapeutic action of ichthyol must be referred to the sulphur attached to the carbon. Through the introduction of the sulpho group into a sulphur-containing oil, the latter is rendered both soluble and resorbable. This feature distinguishes ichthyol from other organic sulphurous compounds previously proposed as therapeutic agents. "Alongside of the considerable percentage of oxygen," says Unna, "the sulphurous constituents of ichthyol represent its essential and active principle."

"The extreme solubility of ichthyol," says Prof. Ziemssen, "enhances the practical value of the remedy."

The following preparations of ichthyol, obtained from Cordes, Hermanni & Co., in Hamburg, were (with the exception of the two last) examined and employed by the author:

1. Ichthyosulphate of sodium, pure or diluted.*

2. Ichthyol in an alcoholo-ethereal solution (five per cent.).

* A potassium and an ammonium salt are likewise prepared from ichthyol.

3. Ichthyol cotton.
4. Ichthyol plaster.
5. Ichthyol soap.
6. Ichthyol vaseline.

The somewhat unpleasant odor and taste of the preparations intended for internal administration can be satisfactorily disguised by the addition of a few drops of alcohol in which equal parts of cumarine and vanilline are dissolved.

The physiological experiments hitherto instituted with ichthyol are too deficient to claim our attention, and give no clue to the therapeutic efficacy of the drug.

Baumann and Schotten determined experimentally the absolute innocuousness of ichthyol, and found that doses of a medium size produced in dogs no palpable physiological alteration, while larger doses (3 to 5 drachms) caused copious intestinal discharges, continuing for several days. We regret the absence of exact and thorough physiological researches in reference to ichthyol, and hope that this gap will be filled in the near future. It is thus in an exclusively empirical sense that we are led to appreciate the therapeutic effects of the remedy which we are to discuss at present.

For the sake of a convenient survey, I shall at first simply indicate the various therapeutic uses without further commentary.

A. External application :
   1. In lesions, wounds, and diseases of the skin (eventually with a simultaneous internal administration).
   2. In tumefaction of joints.
   3. In muscular rheumatism and neuralgia.
   4. In catarrhal affections of pharynx and larynx (gargles and atomization).
   5. In toothache.

B. Internal administration :
   1. In gout and rheumatism.
   2. In catarrhal gastric affections.
   3. In chronic constipation.

Unna, the distinguished dermatologist of Hamburg, has the merit of having first pointed out the great healing power of ichthyol in affections of the skin and its remarkably extensive applicability in the dermatological practice (Wiesbaden Congress, April 8 to 11, 1885). It would exceed the scope of this paper to dwell on the numerous and different published cases of skin-diseases as treated successfully with ichthyol by Unna. His experience in the treatment of lepra with ichthyol has been formulated by this author as follows :*

1. The cure of lepra, even if existing for more than a year, can be effected in a comparatively short time by a systematic external and internal exhibition of reducing agents, especially of ichthyol.

2. The ichthyol salts are externally to be employed in a very concentrated form. Internally, ordinary doses (15 grains *pro die*) suffice. Being the only one of the suitable reducing remedies that may be taken internally *ad infinitum*, the ichthyol salts are of unequalled value in the lepra of internal affections (eyes, scrotum, liver, and lymphatic glands). Externally, they are indicated in weak constitutions, in presence of a very sensitive skin, in transitory or absolute contra-indications of stronger applications (chrysarobine, pyrogallol, and in the lesions of the integument produced by the latter).

3. Ichthyol is not only an external (though mild) antileprosum, but acts also by its peculiar alterative virtues when ingested by a leprous individual.

4. The prognosis of lepra must be regarded as more favorable than that of the syphilitic lesions, as far as relapses are concerned, for the remedy of lepra need not be suspended, like mercury and iodine, on account of eventual after-effects.

Küssner,† of Halle, regards as indications of ichthyol eczemata of every description (pruritus universalis, prurigo, and chronic and acute articular rheumatism). Prof. Binz, of Bonn, eulogized the preparations of ichthyol likewise at the Wiesbaden Congress. Unna (*Aerztl. Vereinsbl. f. Deutschland*, 1885, No. 158) emphasizes the healing power of ichthyol in the various forms of acne, complicated with rosacea, and in rosacea alone. We quote here the words of the dermatological authority: "If the substitution of sulphur by the preparations of ichthyol must be considered a progress already in acne, as ichthyol, unlike sulphur, never attacks the eyes, this substitution is still of greater importance in rosacea. The cure of this affection, previously laborious and doubtful, has been rendered rather easy and prompt by ichthyol. I give ichthyol internally in this affection, as follows :

℞ Ammon. sulphoichthyolici, ʒi–ii;
Aq. dest., ʒv. M.

S.—15–30–50 drops (gradually increased) in water morning and evening.

In another place of the quoted paper Unna says, "The internal use of ichthyol regulates the circulatory disturbances of organs, and is

* Monatsh. f. Prakt. Dermatol. Ergänzungsheft, 1885.

† Wiesbaden Congress.

indicated in hyperæmia and swelling of the nasal and pharyngeal mucous membrane, hyperæmia and chronic inflammation of the conjunctiva, frost-bites on hands and feet, sensation of cold in the extremities, hemorrhoids, menstrual anomalies, and pains in loins and back caused by sanguineous stagnation in the pelvic organs. Ichthyol raises the working power of the digestive organs, regulates (without increasing) the movements of the bowels, and heals old gastro-intestinal catarrhs. Digitalis, when given for cardiac affections, is no contraindication for ichthyol."

(To be concluded in next issue.)

ALUMINIUM BRONZE IN MEDICINE AND DENTISTRY.

By Prof. C. Sauer, Berlin, Germany.*

ALUMINIUM BRONZE, which I have utilized for the under layer of teeth-plates, is entirely free from injurious oxidation. For this purpose, and in teeth-straightening machines, it admits of easier manipulation than gold alloys or silver. I believe, therefore, that it might be of use in the manufacture of surgical instruments. Canulas, sounds, catheters, etc., might be made, and everything that is manufactured from silver. It is an alloy of 900 copper and 100 aluminium. It admits of almost as ready stamping and pressing as pure silver (which, next to pure gold, is the softest metal), and it has besides the elasticity of steel. In form of wire, aluminium bronze possesses a power of resisting tension approaching that of steel wire. These characteristics render the aluminium bronze capable of substitution in many cases for silver, and for silver and gold alloys. I have found the melting-point of the aluminium bronze to be higher than that of pure gold,—1000° C. It may, accordingly, be made red-hot without danger of melting, and manipulated with hard solder. I solder it with from 14- to 16-carat red gold, and such solder is more capable of resisting chemical influences than the silver solder, which contains zinc. 10 grms. of aluminium bronze, in the form of a lead plate, are worth 25 pfennige (6 cents), while 10 grms. of 12-carat silver, in the form of a lead plate, are worth 1 mark 50 pfennige (37 cents); 10 grms. 14-carat gold cost 19 marks ($4.75). Aluminium bronze is one-half lighter than 12-carat silver, and almost half the weight of 14-carat gold.

For testing how aluminium bronze is preserved in the mouth, I have employed the galvanic current. Pure aluminium, with other metals, in the presence of an acid or an alkali, yields a galvanic current. Years ago, in experiments with the mouth, I found that in a combination of aluminium with zinc the latter oxidizes. In manufacturing a combination of aluminium with gold alloy or platinum, under such circumstances, the aluminium, on the contrary, decomposes. In two cases in which it was possible for me to weigh pieces of aluminium bronze placed in the mouth, under the influence of a possible galvanic current, and the pieces not being cleaned, and therefore not mechanically worn, after the lapse of four weeks I noticed no loss of weight. For instance, with a piece weighing 16 grms. I have been able to discover only a loss of 0.008, and, besides, after first weighing the piece,† a screw was afterwards inserted, so a very slight mechanical loss of weight, therefore, took place. The aluminium bronze oxidizes only superficially in the mouth. There forms upon it a kind of patina, such as is formed in the wearing of plates of 14-, 16-, 18-, and even 20-carat gold. It admits of manufacture into spiral springs, plates, screws, canulas, etc., for surgical purposes. Even knives have been manufactured therefrom. A solution of corrosive sublimate of 1 to 1000 affects it superficially. For its disinfection carbolic acid is to be preferred, as it does not attack the aluminium bronze. Gold aluminium bronze acts similarly, but oxidizes to a greater extent, is softer, and not so elastic, and therefore is to be used as green gold or 20-carat gold is used.

* Instructor of Dentistry at the Institute of Dentistry of the Royal University at Berlin.

LEGAL TENURE OF CEMETERY PROPERTY.

By Henry A. Riley, Esq., New York.

THE tenure of cemetery property is an important matter, as it concerns every one to know in whom exists the ownership of land in which is buried the remains of departed ones.

The question has assumed a new aspect in recent years, owing to the formation of the large public cemeteries. Prior to fifty years

† A bandage for fracture of the upper jaw, which was shown at the Surgical Congress in the mouth of the patient.

ago interments were almost universally made in grounds surrounding churches or in land belonging to some political community, such as a town or village. The ownership in England of the church building and the burying-ground surrounding it has been held to be in the rector of the parish, and he has exercised at times the most arbitrary exclusion of the bodies of persons whose friends wished to have buried in the ground made sacred by the use of centuries. While the ownership of the land has been held to be in the rector, the courts have also held that every member of the Church of England has the right of burial within the parish church-yard, and cannot be deprived of it. The cases of exclusion noticed have mainly been those of persons connected with Dissenting Churches, but who paid taxes for the support of the Established Church, and who desired interment beside the remains of members of their families who had been in communion with the Established Church. In this country the colonies had at the outset what often was practically an Established Church, yet the right of burial does not seem to have been refused to any one in the burial-grounds which were created and owned by the town or village, and yet the individual did not in many cases acquire personal ownership of a lot. There grew up as the country became older desires for a more certain tenure of cemetery property, and consequently cemeteries other than the common grounds of the town were sought. The churches set aside land surrounding them for the burial of their members and their families, private grounds belonging to a few families were formed, or a special piece of ground was consecrated on some hill-top or in some valley for the separate use of a single family. Last of all came the formation of large public cemeteries, organized under State laws or by legislative charter, which had no connection with any ecclesiastical organization, but were intended for the general public.

In addition to these public cemeteries, which have become so prominent in connection with burial, there are near many of the large cities cemeteries belonging to special denominations but open to the interment of any person belonging to those churches. Such are Calvary Cemetery, under the control of the Roman Catholic Church, and the Lutheran Cemetery, belonging to the church of that name, both of which are near the city of New York.

The principles of tenure in these various forms of cemetery property differ somewhat, and many of the States have special statutes, which will be referred to in another article. In burial-grounds surrounding churches, which, in times gone by, was the general place of sepulture, the title was in the church organization as much as that of the church building itself. In many cases land was given to churches for the purpose of creating or enlarging burial-places. The church, which usually was not a corporation, but a voluntary association of persons holding similar ecclesiastical opinions, held the title as other voluntary associations are allowed to do under the laws of the various States, the fee being in the whole number of members. It is probable now that almost every State has laws permitting the formation of religious corporations, and such bodies would hold the title to burial-grounds, succeeding in the cases of long established churches to the title held originally by them as voluntary associations. In these burial-grounds lots were generally set aside for families, and often by written instruments, giving certain rights. Money was frequently received for such lots, and receipts given. Documents, in the nature of deeds, were passed in many cases, yet these often wanted some of the requirements of ordinary deeds, or were full of conditions, so that title in the common sense could not be again transferred. These documents were not usually recorded, and at the present time it is rare to place on record any transfer of cemetery property, such as individual lots, whether in church grounds or the large public cemeteries, such as Laurel Hill, Greenwood, or Mount Auburn.

This being, then, the usual custom about transferring rights from church organizations to individuals, it has become a very interesting question to know exactly how much of ownership was transferred to the individual by the payment of money and the setting aside of certain fixed spaces of ground. In general, it may be said that only the right of burial was transferred. The individual did not acquire and could not exercise the ordinary rights of ownership. He could not dispose of the lot for purposes other than burial, and this was true whether the document transferring to him a qualified ownership mentioned the restriction or not. The individual could, however, exercise some powers over the cemetery at large. The bodies of the dead could not be touched by any one for purposes of removal without the consent of the owner of the lot or the order of a court, and cemetery authorities them-

selves were in the same position as to removal of bodies. In this latter case, however, the statutes of the several States often prescribed a way for the legal removal of all of the bodies buried in a cemetery to a new location.

The law generally held that the individual owner had an easement in the land but not an unqualified ownership. This was equivalent to a right of continued and uninterrupted possession and occupation.

The right was similar to that by which a pew in a church was held when it was sold to an individual. In such cases the owner had no power to dispose of the few feet of ground on which his pew was resting in any way contrary to the regular purposes of church worship.

Even when it has been conceded that the individual did not have an unqualified fee in a burial lot, it has been sometimes claimed that the dedication by a church, or any other organization, of land for burial was so public and sacred that the land could never be used for any other purpose than burial, and that consequently the individual occupation, if not ownership, would be perpetual. But it is doubtful if there was ever any real basis for this claim in the common law. It has been held that the courts, even without special statutes, could, for good reason shown, direct the removal of bodies, and this in the face of passionate opposition on the part of lot-owners and relatives of the deceased. Such questions rarely arise now, as the States generally have specified a way by which the propriety of removal can be lawfully decided.

In the case of private cemeteries, for a small locality or community, the same general principles of ownership are to be applied.

In the case of burial-grounds containing only the bodies of a single family, ownership, it would seem, was in common, and descended to the heirs. The States have in many cases declared that grounds of this character could not be laid out within specified distances of neighboring houses.

In the case of the large public cemetery corporations the title is usually in the corporations and not in the individual lot-owners. Such cases are usually governed by the carefully-drawn regulations of the organizations themselves. Some do not grant a fee but only an easement, and some grant a fee but subject to restrictions. Reference will be made in another article to some of the principal cemeteries and their regulations.

In regard to restraints upon alienation, where the individual owners have some sort of a title, it may be said that the courts will not permit the sale by one of several owners to strangers, and injunctions will be granted forbidding such transfers. This seems to be true under the common law, and in many States laws directly forbid any transfer whatever after bodies have been once interred in a lot, the title passing in such cases only to heirs by descent. It has been held that without a law on the subject it was not contrary to public policy to mortgage an individual lot. In New York, however, and other States all mortgages are now forbidden. Lots are exempt from sale under execution on debt.

VICARIOUS GENEROSITY.

A very good story as to a mode of repelling unwarranted claims on medical charity, which in some cases at least may prove successful and worthy of being repeated, is related in the *Brit. Med. Journ.*, March 20, 1886.

"A lady of quality," a peeress to wit, sent her butler to a well-known physician, a man who, were we at liberty to mention his name, would be generally recognized as one of the busiest men in London, with the request that the patient might be examined and prescribed for, gratuitously, of course. "My good man," said the physician, "as you are my lady's butler, you are not a suitable person to be treated at the hospital where I see poor patients for nothing; in my own consulting-room, my time is too valuable; here is a guinea, go and see my junior colleague, Dr. ——; he is not so busy as I am, and will be able to advise you for that fee." Her ladyship, it is interesting and instructive to learn, repaid the guinea next morning. The moral is plain. The profession as a whole does so much charitable work, that many people seem to expect that every member is to give his time and labor at any time and any place, and to any extent which may be most convenient to the patient or his friends. Quite a large enough proportion of the people who go to hospitals have no right to gratuitous advice, and it is asking rather too much of even the most patient and long-suffering to expect that a still more well-to-do class, too fastidious to go to hospitals, should be allowed to invade private consulting-rooms during the morning hours, which are dedicated to remunerative labor. No other profession has such claims made on it. If the butler had been in some legal difficulty, would the family lawyer have been expected to advise him gratis?

The Therapeutic Gazette

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Leading Articles.

RECENT PROGRESS IN SANITARY SCIENCE.

THE constantly-increasing demand in every community, that physicians should be not only, as in former ages of the world, healers of disease, but also preventers of derangements to health, in accordance with the laws of both public and personal hygiene, is manifested in numerous ways, and especially indicated by the reports of State boards of health, which accumulate with great rapidity upon our editorial table. Thanks to the deplorable outbreak of typhoid fever at Plymouth, Pa., our own State has at last joined the number of those in which systematic care for the health of citizens is imposed as a duty upon a governmental department, and at the present time Ohio is the only prominent member of the American Union in which an organized struggle against the causes of preventable disease and premature death, by an established State board of health, is neglected.

Among the highly important and as yet unsettled problems now demanding solution at the hands of sanitarians, is that of sewerage systems and sewage disposal, to the discussion of which a large part of the non-statistical section of the last Rhode Island report is devoted. The author of this able essay considers the questions involved especially as applicable to the needs of the city of Providence, and after an extended investigation of the methods of sewage disposal in England and on the continent of Europe, Mr. Grey, as city engineer, recommends the conduction of the sewage to a point below the city, when after treatment with chemical substances, which will precipitate the suspended matters, the clarified effluent is to be emptied into deep water, with which it will be carried out to sea. Mr. Grey recommends this process because he believes that the resulting purified liquid will be entirely harmless, and that, therefore, although this plan is less effectual than the mode by sewage irrigation as practised in Paris, yet it will be preferable in this instance on account of its smaller cost. The amount of town sewage from Providence is estimated at about three millions of gallons daily, and the expense of the additional sewers, tanks, and other apparatus, is calculated at nearly four millions of dollars. The sludge or precipitated material is to be compressed into a mass firm enough to admit of easily handling, and is believed to be valuable as a fertilizer, although no immediate income to the municipality from its sale as a manure is expected. At the present time it appears that all the precipitation methods are carried on at a loss to the town authorities employing them. The plans are very numerous, but those which have best stood the test of time are three in number, namely: 1st, the Coventry process, in which the sludge results from the addition of crude sulphate of alumina, salts of iron, and lime; 2d, the native guano, or A B C process, in which alum, blood, clay, with animal charcoal, are the precipitants; and, 3d, the lime method, in which milk of lime is employed. Of these the A B C device, the merits of which were very highly vaunted at first, has been generally abandoned, except in the town of Aylesbury, England. At Leeds, England, the lime process has been substituted for the A B C method, in which, although the resulting effluent is more thoroughly purified, less economy is secured than by that in which milk of lime is employed.

The establishment of works at Providence, in accordance with the carefully-considered suggestions of Mr. Grey and his assistant, Charles H. Swan, will doubtless be watched with great interest by American sanitarians, and the results which may be attained, like

those afforded by the experiment now going on in Memphis, upon the separate system of drainage, will be of great value to sanitary engineers generally, whether they lead to failure or success.

For several years past the efficiency of the Massachusetts Board of Health has been so unwisely crippled, in consequence of political influences, which decreed its union with the departments of lunacy and charity, that little good work has been accomplished, and the annual documents put forth under the name of reports have presented a lamentable contrast year after year to the earlier volumes, which formed a series of which even our modern Athens might be proud. The supplement to the report of this heterogeneous board for 1884, containing the papers on public health, displays, however, a creditable renewal of activity in the pursuit of sanitary science, which may perhaps be attributed to the encouraging prospect of a restoration to the hygienists of Massachusetts of independent organization.

Among the valuable essays presented in this volume is that of Prof. Edward S. Wood, M.D., on "Arsenic as a Domestic Poison," in which he endeavors to popularize a knowledge of the fact that many of the red, yellow, and brown wall-papers in common use are almost as dangerous as the bright green decorations which have been so frequently condemned by hygienists as to largely prevent their employment. This admirable article of Dr. Wood's is illustrated in the most practical manner possible by a series of thirty-six strips of wall-papers, calico and Turkey-red fabric, which, with a single exception, contain arsenic in quantities varying from about half a grain up to nearly fifty-six grains per square yard. None of the heavily arsenicated papers, such as were described in a report by Dr. Draper some years since (in one of which two hundred and sixty-three grains of arsenic per square yard were found), have been included in this instructive collection of poisonous wall decorations. The reason for their omission is given in the powerfully-suggestive circumstance that on the previous occasion, when such samples were used in illustration, their handling and folding by the bookbinders employed were found to give rise to extremely disagreeable effects,—that is to say, the usual symptoms of arsenical poisoning. It is worthy of note that the single specimen of wall-paper in Prof. Wood's series in which no arsenic could be detected was of a bright green color, showing that no necessity for the use of Scheele's green and other arsenical pigments in the printing of wall-papers really exists.

Dr. Wood very properly directs attention to the fact that those among his samples called by dealers "glazed and plated papers" are the most dangerous, because they are so largely used by young children of kindergarten schools in the manufacture of the attractive but perilous little mats, covers, etc., in which the infant constructors take so much delight. Even when teachers of such embryonal educational establishments instruct the pupils not to place the brilliant strips of paper in their mouths, or even between the lips, there is no doubt that tiny particles of the deleterious pigment are frequently rubbed off upon the hands, and being conveyed to the mouth, and passing from thence to the stomach, give rise in numerous instances to otherwise unaccountable derangement of health. One of the green papers described, and actually used in kindergartens, was loaded with twice the fatal dose of arsenic for an adult upon every square foot. The green paper used in covering a small bandbox, having three square feet of surface, which was examined by Dr. Wood, contained about one hundred grains of arsenic, and the same deleterious metal was found in alarming quantity in the papers employed in manufacturing theatre-, concert-, and car-tickets, playing-cards, and many other objects handled freely, and frequently without the smallest hesitation, in the daily occupations or the pleasures of civilized life.

Prominent among the Western State boards of health stands that of Illinois, holding the proud position of an eminent benefactor to the whole American people, through its efforts to elevate the standard of medical education and cut short the careers of medical quacks and charlatans upon our Continent. The practical efficiency of the stringent regulations adopted by the Illinois Health Board is proved by the fact, that whilst in 1880 there were but fourteen medical schools in the United States which required evidence of suitable preliminary education, and seventeen which gave some prominence to the study of hygiene, there were in 1885 one hundred and ten colleges insisting on the preliminary education requirement, and ninety-one in which preventive medicine was duly taught. Although, as Dr. Rauch, the energetic secretary of the Illinois Board of Health, remarks, some of this improvement is apparent only, the announcements being in a few instances intended chiefly as a means of securing wider

and more favorable advertisement of their institutions, yet deducting whatever allowance the most sceptical may demand on this account, there still remains a substantial gain for the present, and a still more brilliant promise for the future of medical education in America.

The peculiar excellence with which we believe every impartial reader, as he rises from a perusal of the last Michigan health report, must credit Dr. Henry B. Baker, its indefatigable author and secretary of the board, is the thoroughness with which accurate information on sanitary subjects is disseminated among the people of Michigan, fortunate enough to enjoy the official care of this active organization. Not only is an earnest effort made to faithfully discharge the duty of warning American citizens against the ordinary causes of disease, such as typhoid fever, diphtheria, and scarlatina, by the free distribution of brief essays or leaflets concerning such maladies, but translations of these excellent rules for their prophylaxis are issued in German, Dutch, French, Polish, Swedish, and Danish-Norwegian, in order to facilitate the operations of preventive medicine among the ignorant foreigners who find a refuge (too often, alas, only to abuse it) upon our shores. Some of these little pamphlets (as, for example, that on the prevention of typhoid fever, also reprinted in this report) are so clear, concise, and comprehensible, as to render them models of effectiveness. Indeed, so admirably are these sanitary tracts adapted to the end in view, that we deem them well worthy to form the basis of popular instruction, which, if given for a single day in the year in every public school throughout the United States, would, we believe, deliver the people of America from tens of thousands of premature deaths, and perhaps millions of cases of unnecessary illness annually. Dr. Baker estimates the total number of deaths from typhoid fever in Michigan at one thousand per year, and considers the proportion which deaths from typhoid fever bear to the total mortality throughout our Union is elsewhere at least equally great. The reply to the question as to how this enormous death-rate can be prevented he considers may be given in the four words, "Stop drinking contaminated water," and we wish that every physician, yes, every householder in America, who is inclined to be ignorant or careless upon this important subject, would spend his next leisure half-hour in reading over the convincing array of indubitable facts and cogent arguments marshalled by Dr. Baker in favor of this great aphorism of practical hygiene.

A report of especial interest to the medical profession in Pennsylvania, and in several other States where boards of health have recently been created, or are soon to be established, is the first annual volume from the State of Maine. Among the valuable contents of this highly creditable document, the portion of greatest general interest is doubtless an account of the well-devised system of prophylaxis, so successfully erected against the introduction of smallpox from the neighboring Canadian provinces. The outbreak of variola in Canada having been allowed by ignorant and careless municipal authorities to assume such alarming proportions (a total of 3164 deaths being recorded), much anxiety was soon experienced in the neighboring States of Maine, New Hampshire, Vermont, and New York lest this loathsome disease should be conveyed across our frontier by persons endeavoring to escape from the epidemic. As an aid against the chance of invasion, a circular was addressed to the numerous proprietors or managers of lumber camps in the northern and eastern parts of Maine, urging them to compel every foreign workman to submit to thorough vaccination before giving him employment, and pointing out the methods of isolation and disinfection necessary should cases of smallpox appear. Thorough inspection and vaccination services were promptly instituted upon the railroads crossing the boundary-line, and so successful were the officials of the State board in their well-planned system of defence, that only three cases of smallpox or varioloid are reported to have occurred in Maine during 1885. Moreover, it is gratifying to relate that, although two of these attacks were sufficiently severe to prove fatal, the sanitary precautions of isolation, disinfection, vaccination, and re-vaccination were so stringently enforced, that no secondary cases developed from these otherwise dangerous *foci* of infection.

THE ACTION OF KAWA RESIN.

KAWA, the resin obtained by Lewin from the root of piper methysticum, whose action we have already referred to in the THERAPEUTIC GAZETTE for February and April, is still attracting considerable attention, and promises to become almost as valuable, provided it can be readily handled, as cocaine now is.

Dr. N. A. Randolph, in the *Medical News*, February 13, 1886, obtained results which, in the main, confirm those of Lewin, although the effects in his hands were not quite as marked as reported by Lewin. Dr. Randolph suggests the name lewinin for this resin, instead of the term alpha kawa resin, proposed by Lewin, who discovered it. The resin is a semi-fluid body, with a peculiar aromatic taste, pungent and hot like pepper; when placed upon the tongue, there is a momentary burning sensation, with increased salivary secretion, followed by local numbness, which may last for more than an hour. The kawa resin is too irritating to be applied to the human conjunctiva, but Dr. Randolph thinks that by first instilling cocaine, so as to render the conjunctiva insensitive, kawa might then be used to produce more prolonged anæsthesia. Its use in dental practice also suggests itself, and in the hands of aurists and laryngologists, though the facts that it is insoluble in water and glycerin, and that an alcoholic solution has serious disadvantages, will perhaps somewhat restrict its usefulness. It may, of course, be used in suspension in mucilage, but no reports have yet been published as to the use of the drug so prepared. The kawa resin can also, as we have already mentioned, be used as a means of disguising the taste of bitter medicine by rendering the tongue first insensitive by its application.

Still another use for the resin of kawa, or, as it is also spelt, kava, is in the treatment of gonorrhœa and acute affections of the urinary passages. As pointed out by Dr. Sanné, as long ago as 1876 Dr. Dupouy described the benefits obtained in the treatment of gonorrhœa by the decoction of kawa used as a stimulant in the Samoan Islands. The pain on micturition becomes less, the discharge decreases, and cure in many cases resulted in from ten to twenty days. Dr. Sanné has also himself had personal experience with the use of kawa in various diseases of the urinary apparatus, and he reports in the *Bull. Générale de Thérapeutique*, March 15, 1886, a number of cases in detail where this mode of treatment was employed. Dr. Sanné used kawa in the form of an alcoholic extract of the root, which probably closely corresponds to the resin described by Lewin. Sanné, however, calls it kavaine, which, while not an alkaloid, he thinks may perhaps be a glucoside. It is obtained from the bark of the root. He has made use of this alcoholic extract in pill form, each pill containing 1½ grains, which correspond to about 15 grains of the powder of kawa. Eight to twelve of these may be given daily. They are well tolerated by the stomach, do not produce diarrhœa, eructations, or disturbance of appetite, have no effect on the skin, and produce no odor on the breath. They impart to the urine a slight odor, which is comparable to that of copaiba. He reports six cases in detail, in all of which cure resulted, one of spasmodic cystitis, one of inflammation of the prostate with double orchitis, three of acute gonorrhœa, and one of chronic gonorrhœa with suppurative orchitis. In the treatment of gonorrhœa the use of the kawa pills appears to have been the only medication employed.

PERMANGANATE OF POTASSIUM AS AN EMMENAGOGUE.

THE tendency to report our successes and to allow our failures to drop out of sight is inherent in human nature. Even when our failures are through no fault of our own, and might be instructive to others, we are very loath to believe them worthy of record; hence it is that in regard to almost any remedy medical literature abounds in laudations and successes, whilst reports of failure are rare, so that the balance of published accounts is almost always in favor of a drug or a measure, even though such measure may have been proven worthless and universally discarded.

These considerations have been brought to our minds by a recent perusal of the literature of metallo-therapy, a system of treatment which, if all that has been said of it were true, would be of great importance. Our readers may remember that as long ago as 1849 a French physician by the name of Burq discovered the alleged facts which are the basis of the system, and that being of a most persistent turn of mind, he pursued the subject in season and out of season until, in 1876, he persuaded the French Society of Biology to appoint a commission to investigate the truth of his assertions. This commission was composed of the most eminent of French neurologists, and, after three years, reported the correctness of the statements of Dr. Burq. The disease especially implicated in the method was hysteria, and the condition of hysteria in which there is lack of sensation, viz., hemianæsthesia. It was found that the hysterical patient varied in her relations with different metals; that in the one case the binding upon the anæsthetic surface of a disk of zinc would restore sensibility, or, in another case, copper

alone was successful, whilst a third case yielded perhaps only to the persuasive powers of silver, gold, platinum, or other precious metals. The commission further discovered that usually there was a transfer of the anæsthesia from one side to the other, so that whilst the left side, for instance, became sensitive under the application of the proper metal, the right would lose its sensibility. The capital therapeutic discovery of Burq was that if the metal which was found to be so related to the individual as when in contact with the skin to remove anæsthesia, was given in continuous dose internally, it produced a cure. This also was in a measure confirmed by the commission. In sundry cases, under the use of the elected metal, color returned to the face, power to the paralyzed arm, sensitiveness to the benumbed surface, joy to the distressed heart, and peace to the surrounding family. A lamentable "find" made by Prof. Charcot was, however, that the application of a metal to the healed surface was followed by a return of the symptoms, so that the clouds which had been dispersed would again make the landscape of the patient's future dull and leaden. Permanent satisfaction could only be obtained by fleeing from metals as from the unpardonable sin.

Great names are those which have vouchsafed the facts of metallo-therapy. Slight, indeed, has been the public denial, and yet who to-day uses metallo-therapy as a practical method of treatment?

In recent numbers of the THERAPEUTIC GAZETTE we have published, under the ægis of names scarcely less renowned than those which sanction metallo-therapy, the use of permanganate of potassium in amenorrhœa. As is known by everybody, the permanganate of potassium is decomposed with great certainty and rapidity by organic matter in the presence of an acid.

It seems to us very evident that the permanganate of potassium cannot exist for a few moments in the stomach without decomposition, and that as the permanganate it cannot ever get into the blood; if, therefore, it really has emmenagogue properties, such properties must be possessed by the salt of manganese which is formed in the decomposition of the permanganate of potassium. We would very much like to direct our readers to a clinical study of this subject.

In the first place, we wish extended the practical investigation as to whether the alleged results produced upon the uterus have not been merely accidental.

In the second place, if the permanganate be really found to be an emmenagogue, trials should be made with the acetate or other soluble salt of manganese.

We have very little doubt but that various practitioners have tried the permanganate, and almost as little doubt that it has been found wanting as an emmenagogue; but, from the considerations already given, the reports of failures are wanting. We would, therefore, ask any reader who has tried either *unsuccessfully* or successfully the salt, to let us know the general scope and the details of his experience.

If emmenagogue properties are possessed by the permanganate and also by the salt of manganese, the latter would be much the preferable, because less apt to irritate the stomach.

THE NEURALGIC DIATHESIS.

ONE of the so-called opprobia of the medical profession most frequently spoken of is neuralgia, and it may not be amiss to pause to think what we mean by this much-used word. Formerly almost all forms of nerve pains were spoken of as neuralgic, so that, whenever there was a lack of local lesions, such as abscess, boils, swelling, etc., the patient was said to be suffering from neuralgia. At present, by the acute diagnostician, very many of the cases which are still believed to be by the public suffering from neuralgia are recognized as sufferers from systemic or organic diseases. There are still, however, nerve pains for which we cannot account, and for which the name of neuralgic must be retained. In many of the most obstinate of these cases autopsies will show that the supposed neuralgic pain has arisen from a clearly defined incurable lesion; thus a clot forming near the trigeminal nerve-centre, or a spicula of bone hidden from view, and pressing upon a nerve in such a way as to irritate it without provoking a definite neuritis, would give rise to pain that during life should have to be simply termed neuralgia, and would resist all therapeutic treatment. Leaving out of sight these causes of hidden lesions, there remains a group of cases in which neither during life nor after death are we able to detect the cause of the pain. It would seem either that there is a molecular change in some of the sensory nerves or their centres so delicate as to escape our instruments, or else that there is a general condition of the nervous system which predisposes it to pain-storms. The essence of the

neuralgic diathesis may be considered to be a peculiar, excessive sensibility of the nervous system, which causes it to respond by pain to irritations so slight as not to be perceived, or scarcely to be perceived, by the normal nervous system. Thus most persons experience some uneasiness when a storm is gathering. Even the nervous system of cattle may be so perturbed as to give them warning of the approaching tempest. Hence the Texan steers gallop madly from the coming "norther" whilst the sky is still clear. At such a time the sufferer from the neuralgic diathesis responds to the atmospheric changes by a furious paroxysm of pain.

A very large proportion of cases diagnosticated as neuralgia are undoubtedly cases of chronic gout. If the practitioner recognizes the true nature of these cases by regulating the habits, diet, and drugs of his patient, he can bring much of relief. There are, however, cases in which no evidences of inherited or acquired gout can be obtained, and we must acknowledge that there is a more or less incurable bodily habitual condition, which may be known as the neuralgic diathesis or temperament. This diathesis is often inherited, but is sometimes developed by prolonged bodily exhaustion and anæmia. When once acquired, this diathesis may persist, although the original cause has been removed. If the nervous system has been sufficiently long impressed, the pain tendency becomes stamped upon it precisely as the epileptic tendency becomes a part of the nervous system in a case of neglected reflex epilepsy, and remains after the removal of the original irritation. These neuralgic pains are to be recognized by their persistency, by the apparent absence of cause, by their occurring sometimes in one part of the body and sometimes in the other, and by the diagnostic exclusion of all other sources of pain. The acquired or inherited neuralgic temperament frequently is closely connected with or complicates pains of definite type; thus, cases of migraine occur in which, besides the typical paroxysms, there are occasionally seizures in various parts of the body, or, it may be, attacks of head pain, presenting none of the typical characteristics of migraine. Under these circumstances we may consider that there is a neuralgic temperament superadded to the inherited migraine. The neuralgic diathesis is undoubtedly closely allied to inherited gout, but the facts—that it so often corresponds with the general neurotic temperament; that it is so much more frequent in women than in men; that it so often prevails in dry climates, whose tendency is to produce neuroses rather than gout; and, finally, that it so often occurs in persons free from other gouty symptoms—indicate that it is something more than gout. Even in recent books we read of cases of neuralgia with trophic changes, such as ulcerations, eruptions, etc. It is scarcely necessary to point out that in all these cases the supposed neuralgia is really due to some organic disease, which, in a large proportion of cases, is a neuritis.

THE SALICYLIC TREATMENT OF GLYCOSURIA.

FROM his recent valuable researches, Professor Latham concludes that there are two distinct kinds of diabetes. First, there is that which arises from a neurotic disturbance of the function of the liver; this has the effect of arresting the metabolism of the glucose, and allowing it to pass unchanged into the general circulation and appear in the urine. Second, that which arises from a neurotic disturbance of the function of muscle; this allows glucose to form in that tissue, and to pass unchanged into the general circulation and appear in the urine. He has also shown that this second kind of diabetes is intimately connected with rheumatism; so intimately, that a degree of more or less oxidation determines whether the muscular tissue generates an abnormal amount of lactic acid or of glucose in the system. Moreover, he has shown that, when salicylic acid is administered, it has the property of arresting the formation of both lactic acid and glucose, by means of a chemical combination which it forms with the antecedents of these products.

These views are, to some extent, confirmed by an article published in the THERAPEUTIC GAZETTE of last year, page 446, by Dr. Thomas J. Yarrow, in which are outlined four cases of the complete disappearance of sugar from the urine under the continuous administration of salicylate of sodium. In the *Brit. Med. Journ.*, May 1, 1886, Dr. Holden in a very valuable article calls attention to the rheumatic glycosuria, and reports six cases of rheumatic glycosuric patients in all of which the administration of salicylic acid produced a great reduction in the quantity of urine and entirely removed the sugar. In several of these cases there was no restriction in diet ordered. Dr. Holden has also used salicylic acid in four other cases in which no rheumatic symptoms existed, and in all failed to make

any impression on the polyuria or sugar. The first and most marked effect of the salicylic treatment, according to Dr. Holden, in the glycosuria of rheumatic persons, is the almost complete removal of the distressing polyuria which accompanies it.

In one case, after four days' treatment, the daily evacuation of urine was reduced from twelve to four pints, and, in all the cases, this effect was one of the earliest and most constant; at the same time there was a considerable fall, both in the specific gravity of the urine and its proportion of sugar; even when the treatment fails to remove the sugar entirely, it reduces it to such a trifling amount, that the patient is unconscious of any ailment, and gains in flesh and strength. This improvement persists for weeks after suspending the medicine; the quantity of urine never exceeds three to four pints in the day, nor does the specific gravity rise above 1028 or 1030, though containing sugar. Even this condition must be safer and less serious than when the patient is passing daily nine to twelve pints of saccharine urine, of a specific gravity of 1040 and upwards.

As to diet, the careful restriction which is so imperative in the diabetes of hepatic origin is not so necessary in this kind; still, Dr. Holden thinks it greatly helps to restrict the formation of glucose in the system, by prohibiting potatoes, farinaceous puddings, and sugar as much as possible.

In administering salicylic acid, the following mixture has given good results: ℞. Salicylic acid, ʒii; bicarbonate of sodium, ʒi; carbonate of ammonium, ʒi; mix in water, ℥i; and, when effervescence has subsided, add water to ℥xii. An $\frac{1}{8}$ or $\frac{1}{12}$ part to be taken three times a day. This is a soluble neutral mixture, and is not unpalatable when given in a wineglass of water, with a little tincture of orange-peel added. The ammonia prevents any depressing effects. Dr. Holden has tried the free acid made into 3-grain pills with mucilage, as recommended by Dr. Latham in rheumatic fever, but has not found them superior to the mixture, while many patients object to swallowing five or six pills as a dose.

It is a matter of much importance, with regard to treatment, to be able to distinguish between the two kinds of diabetes. The presence or absence of rheumatic arthritis, pains, and cramps is often sufficient; but Dr. Latham has recently called attention to a more certain mode of distinguishing between the two, as he has found that in the diabetes of rheumatic persons—that is, originating in the muscular tissue—the urine contains some substance which dissolves cuprous oxide; so that a larger quantity of Fehling's test has to be added before getting the brown precipitate in this urine than in the diabetic urine of hepatic origin.

To judge from the proportion of cases of diabetes in rheumatic persons, this kind of glycosuria can be by no means rare; and the early treatment of it with salicylic acid offers a real hope of cure, or, at any rate, it will relieve and prevent that tendency to wasting and exhaustion which has but one issue.

ON MEDICINAL SOAPS.

WHEREVER the objects of medicinal therapeutics meet those of general hygiene, as, for example, in the questions pertaining to food, dress, lodging, and articles of toilet—on this border-line of medicine and the various branches of technology—the aims and abilities of physician and technologist are very apt to collide. While the former is inclined to treat purely technical problems from a rather abstract point of view, and lacks the proper auxiliaries of the artisan, the latter is often apt to encroach upon tasks of a strictly medicinal nature. No wonder, then, that the results of action of either side alone are imperfect and unsatisfactory, and that success can alone be expected from the harmonious co-operation of both the physician and the technologist. This maxim holds particularly true in reference to medicinal soaps. It cannot be doubted that in this instance we have to deal with a therapeutic object of great hygienic importance, which we must acknowledge has hitherto not received the attention from the part of the profession justly due to it. As soaps are being applied at the present day perpetually by everybody to one of the most important organs of the economy, the skin, it ought to be the duty of the medical guardians of the communities to inquire into their nature and qualities with the same interest as they examine the milk and meat of the household. This interest ought naturally be much more intense in the case of medicinal soaps, which hitherto have almost wholly been left in the care of the technical laity. It is not a rare occurrence to meet with skin-affections which have been either caused or aggravated by the use of medicinal soaps obtained by the patient on his own accord. It is thus that we can find an acne resulting from the use of the "infal-

lible tar soap," or an eczema of the worst kind after the application of the "all-curing sulphur soap."

It is the merit of Dr. Unna, of Hamburg,—favorably known to the profession by the introduction of ichthyol, the keratine pills, and the ointment-mull,—to have mended this deplorable state of affairs by having prepared, in connection with competent and well-known chemists, a series of medicinal soaps of a constant strength and undoubted purity.

In the *Sammlung Klinischer Vorträge* by Volkmann (No. 252) we find an essay of the distinguished German dermatologist treating exhaustively of this subject.

The arguments which Unna advances for the eligibility of soaps as a form of applying medicines deserve our fullest attention. The physiology of the skin teaches us that soaps, consisting principally of the secretion of glands of animal skin, are readily taken up by the epidermis. Next to an alcoholic or an ethereal vehicle, which penetrates deeper than soap, soap is for both physical and physiological reasons the promptest and readiest method to medicate the epidermis. It far surpasses in efficacy and reliability the vaseline, glycerin, or paste bases, and is particularly suitable for the various medicines having the character of a salt. Three other great advantages of the soap as a medium of medication are to be mentioned: viz., its antiphlogistic virtues, its economical nature, and its cleansing effects.

Unna regards as indications for the use of medicinal soaps the following: 1, a dermatosis of a universal but light nature which we desire to treat with as little molestation of the patient as possible; 2, if, during the suspension of a vigorous treatment, a milder and simpler medication is desired; 3, if, after the recovery from grave skin-affections, a milder but protracted after-action is intended; 4, if we deal with patients who show a peculiar predisposition for relapses of certain affections, such as eczema pruriginosum, psoriasis, etc. The great permeability of the upper strata of the human integument for soaps is, after all, in Unna's estimation, the greatest advantage in the use of medicinal soaps. He unhesitatingly declares that by the prolonged use of medicinal soaps the strongest impression can be made not only upon the skin, but also upon the entire organism. As an illustration of this influence, he cites the curative results of a thirty-three and one-third per cent. Hg. soap on syphilides of the skin and syphilis of other organs. In his practice he has obtained such satisfactory results with this mercurial soap that he no longer resorts to the inunction cure. The advantages and peculiarities of the soaps prepared according to Unna's directions are in brief as follows: 1, as basis purest beef-tallow exclusively is used; 2, as alkalies freshly-prepared soda and potash lye are used; 3, all soaps are surcharged with fat (*i.e.*, they contain three or four per cent. of free fat in excess to the quantity needed for saponification) to prevent the congestion and desquamation following upon the prolonged medication of the epidermis by a neutral (medicinal) soap; 4, this surcharge of fat consists of olive oil (to eight parts of beef-tallow one part of olive oil is added); 5, the surcharge of fat allows of a better conservation and greater concentration of acids and easily decomposable salts, such as salicylic acid and corrosive sublimate; 6, the soaps contain not more than about fourteen per cent. of water; 7, secondary additions of glycerin and vaseline are excluded; 8, the soaps are not perfumed.

Unna details three methods of applying his "surfatted" soaps. The least energetic is the ordinary mode of washing. If a stronger effect is desired, he directs the affected portion of the skin to be covered with the lather of the soap and then to be rubbed with a dry towel. The greatest effect is, however, obtained by applying a thick lather to the skin and allowing it to dry without the use of water or towel.

The soaps which have been hitherto prepared and tested are the following:

1. Surfatted ground-soap, consisting of potash and soda lye. Use: as an ordinary soap, especially in children, and as a prophylactic agent for cracked and fissured hands.

2. Surfatted marmor soap. Composition: four parts of surfatted ground-soap and one part of finest marmor powder. Use: in acne and all parakeratoses.

3. Surfatted ichthyol soap. Composition: nine parts of surfatted ground-soap, one part of sulpho-ichthyolate of sodium. Use: in all forms of rosacea.

4. Surfatted salicylic soap. Composition: ninety-five parts of surfatted ground-soap, five parts of salicylic acid. Use: in subacute and chronic eczemata, acne, and parasitic affections of the skin.

5. Surfatted zinc-salicylic soap. Composition: eighty-eight parts of ground-soap, two parts of oxide of zinc, ten parts of salicylic acid. Use: in eczema, seborrhœa, hyperhidrosis, and bromidrosis.

6. Surfatted tannic acid soaps. Of these there are three kinds, made respectively with sodium, oxide of zinc and sodium, and zinc alone. Use: in eczema and pemphigus.

7. Surfatted rhubarb soap. Composition: ninety-five parts of ground-soap, five parts of alcoholic extract of rhubarb. Use: in parasitic skin-affections of a light type and intertrigo.

In addition to these soaps which have received a sufficiently thorough clinical testing to claim our confidence, Unna directed the preparation of the following soaps for which neither indications nor effects have as yet been very definitely established: surfatted tar soap, containing five per cent. of pix liquida; surfatted sulphur soap, containing ten per cent. of sulph. præcip.; surfatted tar-sulphur soap, containing five per cent. each of pix liq. and sulph. præcip.; surfatted camphor-sulphur soap, containing five per cent. of camphor and ten per cent. of sulph. præcip.; surfatted camphor soap, containing five per cent. of camphor; surfatted borax soap, containing five per cent. of borax; surfatted iodide of potassium soap, containing five per cent. of iodide of potassium; surfatted naphthol soap, containing five per cent. of naphthol; surfatted naphthol-sulphur soap, containing five per cent. each of naphthol and sulph. præcip.

The carbolic soap prepared by Unna is, according to his own judgment, a useless article, which epithet he claims belongs to all so-called carbolic soaps in the market. With oxide of lead, arsenic, and the white precipitate Unna has also experimented in order to prepare soaps having these metals as bases, but has not yet reached the satisfactory results aimed at. The sublimate soap prepared by him has given very gratifying results in pityriasis capitis, acne, lichen ruber, lupus, and syphilis, but has not yet come up to the state of perfect stability attained in the other soaps.

The use of the medicinal soaps is still in its initiatory phase, but promises to expand into an ordinary and convenient mode of applying medicine after all technical difficulties have been successfully overcome.

ON LANOLIN.

IN the March issue of the GAZETTE our readers found a brief exposition of the practical uses of lanolin. We see from the reports of the European medical press that this novel agent is rapidly gaining popularity, and fully sustains the anticipations with which its discoverer, Prof. Liebreich, of Berlin,* introduced it to the professional world. In view of this fact it becomes a matter of necessity for the American practitioner to familiarize himself with the drug, which no doubt will soon appear in the American market. We therefore beg to represent somewhat explicitly to our readers our present state of knowledge on lanolin, its origin and properties. The wool of sheep, as taken directly from the animal, contains considerable quantities of fatty substances which have to be removed before the wool can be utilized. Formerly this fat was simply thrown away, and only recently—thanks to the economical tendency of our days—it has been collected and put to practical uses. Hartmann and Schulze were the first to chemically investigate this so-called wool-fat, and to demonstrate its actual composition, viz., ethers of fatty acids and cholesterin.

Liebreich went a step further, and showed that cholesterin fat occurred in all keratine tissues (skin, hair, whalebone, feathers of geese, chickens, etc.). Liebreich also showed that the cholesterin fat was not, as hitherto believed, secreted by the sebaceous glands, but was formed in and simultaneously with the keratine tissue. Lanolin, the cholesterin fat of the market, contains about twenty-five per cent. of water, and differs from all other fatty substances chiefly in resisting saponification and the influence of water. Hence lanolin has no tendency to become rancid.†

Dietrich‡ pointed out the therapeutically important fact that lanolin can take up a large amount of water (up to one hundred and ten per cent. of its weight) without losing its suppleness and ointment form, while unguentum paraffini under equal conditions can take up only four, adeps suillus only fifteen per cent. Equally readily can lanolin be incorporated with fats, oils, balsams, and most medicinal bases, furnishing ointments of a hitherto unattained efficacy and constancy.

The principal value, however, of lanolin consists in its unrivalled resorbability, insuring for the medicines incorporated with it the maximum amount of attainable efficacy. At the same time, it is certain that lanolin does not in any way injure nor irritate the skin.

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* Liebreich, it will be remembered, is also the discoverer of the hydrate of chloral.

† *Berl. Klin. Woch.*, No. 47, 1885; *Pharm. Zentralh.*, 1885, p. 534; *Pharm. Zeit.*, 1885, p. 872.

‡ *Pharm. Zeit.*, 1885, p. 978; *Deutsche Med. Woch.*, Dec. 1885.

Dr. Lassar has exhibited lanolin at his polyclinic for skin-diseases in Berlin in about four hundred patients, and regards its introduction into the Pharmacopœia as a desirable acquisition. Reporting his observations on lanolin in the December issue, 1885, of the *Deutsche Mediz. Wochenschrift*, Lassar pointed out the remarkable readiness of its absorption, and among other advantages of the drug mentions its minute distribution, which even allows of the entrance of cinnabar-lanolin into the deeper strata of the integument. Under the influence of lanolin, Lassar says, the skin assumed a peculiar tense condition, a state of turgescence which favors absorption of medicinal agents. Lassar also demonstrated to the Society of Physicians of Berlin, by microscopic specimens, that cinnabar and mercury allowed of a much finer distribution when combined with lanolin than with adeps.

If the skin is tender and irritable, lanolin does not cause œdematous swelling nor any other untoward symptom, as often observed under the influence of other fatty substances. The power of lanolin to penetrate into the deeper strata of the skin renders this agent peculiarly eligible in psoriasis, herpes tonsurans, chronic dermatitis, and the numerous skin-diseases marked by a callous condition of the epidermis. Again, the stated peculiarities of lanolin render it admirably fitted for the application of chrysarobin, pyrogallic acid, salicylic acid, naphthol, the preparations of mercury, resorcine, iodide of potassium, and sapo viridis. In this connection we recall the researches of Dr. Patschkowsky,* with lanolin and potassium iodide; he proves that one-half to one hour after the inunction iodine could be recovered from the urine, while the experiments with the officinal ointment of iodide of potassium resulted negatively. Kaspar, of Geneva, obtained similar results.†

Prof. Fränkel, of Berlin, recommends lanolin ointments for application to mucous membranes, for he found them to prevent the formation of scabs and to diminish purulent secretions. Prof. Röbener noted also the superiority of lanolin in combination with preparations of mercury, sulphur, and tar. A five per cent. carbol-lanolin ointment has been found by Dr. Herrlich (of the German army) to produce local anæsthetic effects (*Pharm. Zeitung*, 1885, p. 978).

In Berlin, lanolin has been successfully tried in ischias (combined with ichthyol), in ichthyosis, in hemorrhoids and burns (combined with cocaine).

In conclusion of these remarks, we state that in the majority of instances it will be necessary to add twenty per cent. of lard to lanolin in order to correct its consistency.

* *Pharm. Zeitung*, 1885, p. 978.

† *Deutsche Med. Wochenschr.*, Dec. 1885.

Reports on Therapeutic Progress.

THE THERAPEUTICS OF THE NEUROSES.

In the *Brit. Med. Journ.*, April 24, 1886, Dr. E. E. Long Fox publishes an extremely valuable paper on the therapeutics of the neuroses, which contains so many novel and important practical points that we offer a full abstract of it to our readers.

In the first place, although neuroses are devoid of any recognized pathological anatomy, there can be no doubt that they are evidences of depraved or disordered nutrition, or, at least, of abnormally altered relations between nerve-cell and supplying blood-vessel.

Neurotic patients frequently inherit from one or both parents the tendency to their peculiar nervous state; but a large number of neurotic phenomena occur in persons who have inherited no such history. They are met with after overpressure of study in the young, overwork of any kind in the adult, monotony of occupation, anxiety, hygienic conditions abnormal both as regards the healthiness of the environment and the proportion of brain-food to brain-work; and they mean partial starvation of the nervous centres.

A few of the chief neurotic symptoms are: dilated pupil; extreme mobility of the iris; a form of amblyopia that is reflex, of vaso-motor origin, induced by irritation of some of the branches of the fifth nerve, or of filaments from the abdominal or pelvic organs, carried to a vaso-motor centre, and causing constriction of the arteria centralis retinæ, or probably sometimes of the vessels supplying the angular gyrus; hemiopia, associated with anæsthesia, and depending on disordered blood-supply to the posterior portion of the internal capsule; various forms of anæsthesia, often very localized, manifestations of a temporarily impaired circulation in the cortex or in the internal capsule, often due to the concentration of the patient's attention on pain elsewhere, or to her thoughts being directed to her emotions or to exalted aspirations; some forms of headache, especially migraine, and the so-called nervous head-

ache often induced by late watching; insomnia, particularly the form engendered by late intellectual work for some considerable period, and relieved by placing a patient for sleep in a nearly upright position, and administering food during the night, or by the administration of ergot; tinnitus, which may often be reflex, and carried up to the tympanum by way of the inferior cervical ganglion; abnormal acuteness of hearing, from ephemeral dilatation of a vessel supplying some of the auditory nuclei, or still more frequently the temporo-sphenoidal convolutions; vertigo, either seeming to depend on slight alterations of pressure in the labyrinth, short of Menière's disease, or when there is a temporary deficiency in the circulation of the middle lobe of the cerebellum; occasional abnormalities of depraved or deficient taste and smell. Motor phenomena in neurotics are so numerous that it is difficult to omit any abnormality of movement from this class; tremor, as of the eyelids; rigor without elevation of temperature; convulsions, either epileptiform, or without complete loss of consciousness, and accompanied by movements of limbs either semi-voluntary or automatic; opisthotonos; hysterical vomiting, with no reflex connection with the pelvic viscera; some varieties of chorea and of hemichorea; paralysis, too universal to depend upon organic lesion, or localized, as of a finger, hand, or arm; contractions, such as torticollis, varieties of talipes, bent arm, the body resting on the heels from flexion of the legs on the thighs; these and many other advanced motor phenomena depend on emotion, and are produced by emotional irritation of vaso-motors in various regions of the brain and cord.

The hyperæsthesiæ of skin, such as are seen in some neurotics of unsound mind; hyperalgesiæ, such as clavus, and the obscure inframammary pain, the tenderness of the hysteric spine, are due to dilatation of vessels in the sensory centres.

Among the psychical phenomena, it would be necessary to mention every manifestation of emotion. The subjects of "temper-disease" are probably invariably neurotic. Great excitability may be the rule, reaching on one side even to mania, especially religio-erotomania; whilst in some cases, the melancholy tendency obtains, with concentration of thought on anything connected with the patient herself, especially her physical ailments.

Of sympathetic phenomena, some connected with the eye have been already referred to. Blushing, pallor, palpitation, faintness, irregularity of heart, neurotic angina (in each case unassociated with organic lesion), various hyperæsthesiæ of the abdominal cavity, colic, gastralgia, enteralgia, hepatalgia, nephralgia, inertia of bowels, disordered secretions, some forms of diarrhœa, meteorismus, and phantom tumor are all connected with emotional action on the circulation; either by way of the vaso-motor centres in the medulla, of the subordinate centres in the spinal cord, of the cervical ganglia, or of the great ganglia in the abdomen.

Among sympathetic phenomena may be placed the copious pale urine of the hysterical, and the various neuroses of the extremities. Of these, one of the most remarkable is the symmetrical gangrene of the extremities, occurring without blocking or disease of arteries.

It is seen, therefore, that the protean phenomena in neurotic patients are due to an abnormal excitability of the sympathetic nerves and ganglia. Given this excitability, the sympethetic system is played upon directly by emotion, reflexly by irritation, or by slight functional disturbance affecting a ganglion, or any nerve-twig leading to a ganglion. Although, therefore, the different neuroses may demand a treatment that varies according to the organ affected, yet no treatment is likely to be effectual that does not act on first principles, and endeavor to subdue, generally by means of nerve-tonics, this morbid excitability.

If one seeks a term that will express the predisposing cause for neurotic phenomena, one must use some word that will mean "starvation of nervous centres." This may be either a cell-condition *ab origine*, or a cell-condition induced by a disorder of vessel. Remedy for it may, therefore, take the form of better nutriment to the cells (fatty and farinaceous food), or of means that will improve arterial tone, and so foster a normal osmosis. Pretty frequently both classes of remedies are called for, and, in some cases, neither will be really efficacious until the patient is removed from an environment either of depressing circumstances, or of a malarial or other toxic atmosphere.

Besides the question of food, that of the promotion of a normal circulation takes first rank. Dr. Fox is speaking, of course, of cases in which there is no coarse lesion. In such patients, the occurrence of neurotic phenomena may be prevented by exciting a better condition of heart-action, by increasing arterial tension, or by obtaining both these effects.

Ammonia, ether, iron, digitalis, strophanthus hispidus, convallaria majalis, strychnine, belladonna, and, in very moderate doses, alcohol, stimulate the heart. It is nearly certain that, in a slight degree, alcohol in small doses really stimulates the heart, over and above its paralyzing effects on the vaso-constrictors. In a much slighter degree, arsenic and jaborandi are heart-stimulants. Arterial tension is increased by ergot, belladonna, the bromides, the acids, squill, Calabar bean, strychnine, nitrate of potassium, casca bark, and turpentine.

But over and above brain-feeding, and increase of cardiac action, or of arterial tension, there is something that takes place in the walls of vessels under the influence of such agents as arsenic, the salts of zinc, caffeine, nux vomica, guarana, etc., that seems to prevent undue constriction and undue dilatation of vessels, especially probably the smaller arterioles and the capillaries; the effect of which influence is to promote a normal osmosis, the taking in of supply from vessel to cell, the giving out effete material from cell to venule.

The important points in all neuroses are the abnormal influence of emotion, and the excitability of nerves and ganglia to reflex irritation. As the channel for the transmission of emotion is eminently a vaso-motor one, and as excitability to reflex irritation is evidence of deficient tone, it stands to reason that so-called sedatives are poor treatment. The tendency should be to give tone to the nerves and ganglia, vaso-motor and other; at first, perhaps, by ergot, by hazeline, by acids, by abundant food; and, later on, by iron, paying attention all through to mental influences.

In certain circumstances, a tonic treatment is not enough for reflex vomiting. A peculiarly difficult form to treat is the vomiting of phthisis, in which, presumably, irritation of the pulmonary branch of the vagus is carried to the medulla, and reflected down both on its gastric branches and on the phrenic nerves. This, even if very obstinate, may be met by hypodermic use of cocaine, though the *rationale* of its effect is not well known. It may act by causing anæsthesia of the pulmonary branches of the vagus, or by rendering the centre of the reflex arc less easily excited. In the latter case, it may have a tonic effect by its constricting power over vessels.

It would not be right to call chorea invariably a neurosis. Some cases, and generally those the least amenable to treatment, depend on organic lesions; but, in the large majority of cases, no such lesion exists; and in them a sedative treatment acts very imperfectly, as compared with a tonic. The salts of most of the metals are useful in this relation, and those of arsenic and zinc pre-eminently so. In low-lying districts with a damp soil, the consensus of large bodies of medical men is in favor of iron; and, doubtless, in this respect, the particular therapeutical agent will vary with the surrounding circumstances; but the principle is the same.

Then, again, as to the imperfectly known neuroses of the extremities:

1. A tingling is met with of all the extremities, both hands and both feet; sometimes with a normal appearance of the skin, sometimes with a waxy blanching. It is a neurosis, but a neurosis depending upon a great variety of causes. The tingling is a reflex manifestation of irritation at a distance, in the stomach, uterus, intestine, etc.; perhaps sometimes from the peripheral nerves themselves, exercising a paretic effect either on portions of the cortical sensory area or on the cervical and lumbar bulbs, or on all these coincidently, or on the vaso-motor ganglia on the vessels themselves; or it may be due to deficient heart-power, and then is accompanied by the waxy blanching of the skin, and with more or less local loss of temperature.

2. Cases are met with in which both cerebro-spinal and sympathetic nerves are involved; and pain, heat, and vascular congestion alternate with pallor, cold, and absence of pain.

3. There is a state of semi-paralysis of the blood-vessels of the extremities, causing flushing of the feet, and generally pain and tenderness. Pain may precede the vaso-motor phenomena. The feet are more commonly affected than the hands.

4. There may be a great coldness of the feet, or of the fingers, associated with contraction of the vessels of the extremities. It is possible that this condition is closely allied to the first variety, and may depend on deficient *vis à tergo*; but it has been thought to be due to overexcitation of the vaso-motor centre.

5. A further stage of this, even if it may not be considered a separate variety, is one in which symmetrical gangrene is the direct result of contraction of vessels. In all these varieties, the vessels themselves are neither occluded nor diseased. It would be against experience to say that these neuroses occur only in patients who have inherited a neurotic tendency. They seem frequently to be set up by the circumstances of the environment. Some varieties are associated with

dilatation of vessels, and in these the use of ergot and of nerve-tonics is essential; but in the forms that own a constriction of vessels, the opposite treatment would hardly be successful. Friction, gentle galvanic currents, tonics, the removal of the sources of reflex irritation, and a due regard to a sufficient *vis à tergo*, will do more than paralyzing drugs, or even than the application of external heat.

In the same line of thought, much might be said on many of the neuroses; on exophthalmic goitre, which, in some of its phenomena, may be included in this category; on diabetes insipidus, often recovered from under ergot and galvanism; on vaso-motor insomnia; on heat-exhaustion and heat-fever, in the first of which depression of nerve force must be met by strengthening remedies, in the latter, the paralysis of heat-controlling centres by quinine; on the non-organic forms of angina pectoris, in which the recurrence of the attacks would be badly met by sedatives and antispasmodics.

THE PHYSIOLOGICAL ACTION OF BENZOYL-ECGONINE.

Mr. Ralph Stockman has published in the *Pharm. Journ. and Trans.*, April 24, 1886, a study of the physiological action of benzoyl-ecgonine. He has found that when $\frac{1}{10}$ to $\frac{1}{8}$ grain is administered subcutaneously to a frog the animal remains apparently unaffected for half an hour or more, at the end of which time it begins to develop signs of muscular stiffness, and shows great unwillingness to move. The pupil gradually becomes dilated. In eighteen to twenty-four hours after administration the reflexes become greatly exaggerated, this increasing until the slightest irritation brings on a tetanic spasm. This condition may last one or several days, and the frog ultimately recovers or dies of exhaustion. Such, briefly stated, are the effects of a medium dose, the same train of symptoms being manifested in a greater or less degree with larger or smaller amounts.

Division of the spinal cord at the medulla had no effect in stopping the convulsions after they were once established.

Action on the Heart.—With moderate doses the rapidity of the heart's action was increased, while large doses, after inducing great irregularity of action, caused it to stop in diastole.

No effect on the vessels of the web could be observed.

Nervous System.—The spinal cord, as before indicated, is thrown into a state of great reflex excitability, exactly similar to what occurs in strychnine-poisoning.

The sensory and motor nerves remain quite unaffected.

Striped Muscle.—It acts as a muscle-poison apparently similar to caffeine, but not nearly so active.

On mammalia he has not had sufficient material to carry out a satisfactory number of experiments. A rabbit which received 24 grains subcutaneously remained apparently little affected.

Cats are more susceptible. On administering 24 grains subcutaneously, the animal shortly after became very uneasy, and was seized with diarrhœa and vomiting, while the pupils were very dilated. Half an hour after, a violent tetanic spasm supervened. During the next few hours the animal had almost continuous convulsions, and finally died of exhaustion. The heart was in diastole, and the small intestines so firmly contracted as almost to occlude the lumen.

From the foregoing description it is evident that benzoyl-ecgonine is practically identical with caffeine in its action, although there are some minor points of difference.

The chief action of cocaine, namely, paralysis of sensory nerves, is quite absent; in fact, the relationship between the action of the two substances seems to be as profoundly altered by the subtraction of a methyl-group (CH_3), as is the case with methyl-strychnine and strychnine.

THE COCCI OF CROUPOUS AND HYPOSTATIC PNEUMONIA.

Dr. Lebashoff publishes in the *Russian Weekly Clinical Gazette* an account of some observations made with a view to determine the frequency with which microbes are present in cases of croupous and hypostatic pneumonia. He examined sections, the liquid contained in the lungs, the contents of the smaller bronchi, and also the fluid of the cerebral ventricles, and in some cases the blood from the heart and large venous trunks. The ordinary methods of staining not being very satisfactory, the author undertook a series of observations for the purpose of improving upon them, and found that the best method of staining lung-sections was to immerse them for from two to five minutes in an aniline solution of gentian violet, and afterwards for from four to fifteen minutes in an aniline or watery solution of eosin, then to wash them

and dry them with alcohol, and finally to treat them with clove or cedar oil. By this method of staining the micro-organisms could be seen to be distributed in a very irregular way, usually in groups. The cocci found in the centre of a lobulus always preserved their ordinary form, and were strongly stained; while single cocci towards the circumference were often hardly to be distinguished, being but slightly stained. While some of the cocci presented a distinct envelope, others apparently of the same variety were seen close to them without any envelope at all. The size of the pneumococci was not constant, this being perhaps due to the manipulations the sections had undergone in preparing them for examination. The cocci seen by the author entirely corresponded with those described by Friedländer. Altogether there were examined forty-eight cases, forty-one of croupous and seven of hypostatic pneumonia. In the latter class of cases it did not seem that any characteristic cocci were constantly present, while in the forty-one cases of croupous pneumonia Friedländer's cocci were found in the lung-tissue in thirty-eight cases. In eleven of these the fluid of the cerebral ventricles was also examined, cocci being found in eight. In the earlier stages of the disease the number of cocci was small; this gradually increased, attaining its maximum when red hepatization was changing into gray. The blood was examined in twelve cases, but no pneumococci could be discovered. The observations were carried on by cultivations in jelly and inoculations of animals. For cultivations in jelly the liquid from the lungs, the blood, and the fluid of the cerebral ventricles were used. Two kinds of colonies were met with. One kind was obtained after inoculation not only of pneumonia but of other diseases, and of putrescent blood. The second kind differed from these in being of a dull white without any admixture of gray, and in being distinctly raised above the surface of the jelly. This kind was only observed after inoculation from croupous pneumonia. From ten inoculations with pneumonic lung-juice these colonies were obtained eight times; five inoculations with ventricular fluid were twice successful, and three inoculations with blood only once. Experiments with mice showed that when these animals were inoculated from colonies of the second kind they developed croupous pneumonia, and in one case out of three in which the grayish cocci were inoculated croupous pneumonia also followed. The author remarks that further observations are necessary on this subject, since mice are very subject to croupous pneumonia, and it is possible that numbers of other micro-organisms may have the power of setting up the disease in them.—*Lancet*, April 17, 1886.

CIRCUMCISION UNDER COCAINE.

Various experiments have been made with solutions of the hydrochlorate of cocaine with the object of producing such local anæsthesia of the prepuce as would result in a painless circumcision. The results of quite a number of such efforts, while greatly lessening the pain of circumcision, have not been entirely satisfactory. In the last two operations, however, which DR. F. N. OTIS (*N. Y. Med. Journ.*, May 8, 1886) reports having done by a new procedure, the first was entirely painless; in the second there was only slight sensitiveness in putting in the last few stitches.

The plan pursued was as follows: Retracting the prepuce, 3 or 4 drops of a six per cent. solution of hydrochlorate of cocaine were injected with a fine hypodermic needle into the internal layer of the prepuce about half an inch from its attachment at the base of the glans penis. This was done so superficially that, as the needle was withdrawn, a little bleb was formed nearly half an inch in length. Waiting for half a minute, the needle was again introduced at the opposite side of the bleb, and it slid in painlessly for another half-inch in the line of the circumference of the penis. In this manner blebs were made until the cervix was completely encircled by them.

The prepuce was then drawn forward, and, by a simple procedure, another line of blebs was made to encircle the external preputial layer at the point elected for the incision. This was intended to be directly opposite the line of injection of the internal layer. The prepuce was then advanced so that the line of injection cleared the end of the glans, at which point it was compressed by a clamp, and excised without the least pain.

The clamp was then removed, the internal layer of the prepuce was slit up, turned back, trimmed with the scissors, and attached to the incised edge of the external layer by continuous suture, comprising about twenty stitches. Not the least pain was experienced in the operation except that caused by the first introduction of the needle in the internal layer, and the same in the external layer. Twenty drops of the six per cent. solution

were used in this case. In the second 25 drops of a four per cent. solution were injected. The chief embarrassment of the operation consisted in the fixation of the delicate tissues so as to introduce the needle with accuracy, superficially, and to a sufficient extent. An ordinary mouse-tooth forceps answers very well, but a forceps in which the needle can ride would be an advantage.

TREATMENT OF ACNE.

Dr. Mahlon Hutchinson believes that in ninety per cent. of the cases of acne of all forms, the exciting cause lies in the genito-urinary organs. Acne may be said to almost invariably manifest itself at the age of puberty, and this happens in such a large and overwhelming majority of cases that it must be considered as more than a coincidence. Until recently he had treated all his cases of acne, with few exceptions, with potassium bromide and tincture of gelsemium, accompanied with local applications of green soap and sulphur ointment, the success, however, being barely moderate; it then occurring to him that there might be some connection between the occurrence of acne and the genito-urinary organs, he commenced using the cold urethral sound, and he stated that his success was startling often to himself. In one week the improvement was very noticeable, and in six weeks he might have dismissed them cured to all external appearances. He states that in these cases, as in all others, there is actually nothing to direct one's attention to the genital organs, and yet he finds in the last twelve months that of the nineteen cases of acne which he has treated in the male, and seven in the female, fifteen of the former and six of the latter have recovered entirely, while the other five did not continue their treatment long enough to form any opinion of his success or failure. In most of his cases the sound was used exclusively, although he also invariably gave a placebo. His plan has also been for the first three weeks to give some laxative preparation accompanied by the local application of green soap, benzoin, and sulphur ointment. The improvement, except in the mildest cases, is scarcely if at all perceptible. At the end of three weeks he is then in the habit of proposing the use of the cold sound, and, after carefully and plainly explaining its nature to the patients, he has never yet met with a refusal to try its use. One or two weeks only are needed to prove the success of his treatment, and in one or two months the skin will be free from acne, but with numerous scars left to remind them of the past. As regards the treatment of acne in the female the cold sound would be useless, while its analogue, the uterine sound, would also, for numerous reasons, be out of the question, there being no probability of benefit derived from its use. But the object is to reduce the supposed hyperæmia and allay irritation; this he finds is readily accomplished by means of the hot douche, and he finds that that being the case, acne is also readily cured in the female by the simple use of the hot vaginal douche. Six out of seven cases thus treated have been eminently successful. Dr. Hutchinson reports five cases treated in this way in detail, in all of which success was obtained. He further adds that in the mild forms of acne local medication, aided by the internal exhibition of arsenic, is sometimes sufficient to produce cures. In those, however, to which he alluded as cured by this method, the treatment with the cold sound and hot-water douche, the mild types have been excluded. As adjuvants to the cold sound and hot-water treatment he has used the following prescriptions, but has derived but little benefit from them when used alone:

℞ Tr. benzoin. simp., ʒss;
Aquæ, ʒi. M.
Sig.—Face-wash.

℞ Sap. viridis, ʒviii;
Aq. cologn., ʒiv. M.
Solve et filtra. Sig.—To be used as cleansing face-wash.

℞ Sulphur precip., ʒii;
Ung. vaseline, ʒvii. M.
Sig.—Apply once a day.

The above is a useful ointment, more useful, however, in acne rosacea than in acne vulgaris.

As a laxative mixture the following:

℞ Ferri sulph., gr. xv;
Acid. sulph. dil., ʒiiss;
Magnes. sulph., ʒii;
Aquæ, ad ʒvi. M.
Sig.—Two drachms half an hour before breakfast in half a glass of water.

Arsenic given in the following form is sometimes quite efficacious:

℞ Sol. arsen. br. (Clemens), ʒii;
Aquæ, ad ʒiv. M.
Sig.—One drachm t. i. d., gradually increased to two drachms t. i. d.

A NEW METHOD OF ESTIMATING THE CONDITION OF THE RIGHT SIDE OF THE HEART.

In September, 1885, DR. W. PASTEUR called attention to a distention of the superficial veins of the neck which occurs when, under certain circumstances, pressure is exerted over the liver. He has since then had an opportunity of examining a large number of patients with positive and negative instances of this phenomenon, and he records the results of this examination in the *Lancet*, May, 1886.

The physical sign in question is a distention or overfilling of the external jugular veins, apparently from below, with or without pulsation or undulation, which takes place when pressure is exerted in the right hypochondriac or epigastric regions with the flat of the hand, the direction of pressure being backwards and upwards. Before proceeding to make the examination the patient should be placed in the recumbent posture, with the neck slightly extended and the head turned a little to one side, while care is taken that the muscles of the neck are not in a state of tension. The sign is usually best marked on the right side, but may in almost every case be demonstrated on the left side also. It is essential that the movements of respiration should be normally maintained throughout the examination.

He has frequently observed a partial filling-in of the supra-clavicular fossa at the moment when pressure is first exerted. This is especially marked in thin subjects, and may be accounted for to some extent, perhaps, by simple mechanical displacement, but is chiefly due to an involuntary arrest or modification of breathing, and almost invariably subsides in a few moments. The amount of pressure required varies in different individuals. In rare cases rigidity of the abdominal muscles renders the manœuvre quite impossible. The presence of moderate ascites is no impediment, but excessive distention of the abdomen with fluid or gas renders the necessary manipulation more difficult and sometimes impossible. The pressure should be exercised gradually and steadily, otherwise an attack of coughing is liable to be induced, particularly in cases of bronchitis. The patients rarely complain of any pain or even discomfort, but on the occurrence of the least pain the manipulation should be at once discontinued.

Dr. Pasteur reports a case which affords a good illustration of this phenomenon, and he believes that it is invariably met with in cases which show evidences of great over-distention or failing compensation in the right heart. He believes it to be invariably present in well-marked tricuspid incompetence, whether functional or due to disease of the valves. But besides these there are a considerable number of cases which ultimately recover, in which the sign is present with varying intensity at one period or other of the illness. Such are instances of mitral valvular disease, whether regurgitant or stenotic, and of chronic pulmonary emphysema, complicated with acute or severe general bronchitis. The question naturally arises, whether the distention in these latter cases (emphysema, etc.) should be regarded as evidence of slight tricuspid incompetence or simply of great over-distention of the right heart falling short of failure of the tricuspid valve. It is to be noted that these are precisely the cases in which the question of tricuspid incompetence has to be considered from a prognostic point of view, and is often left undecided. Venous pulsation is generally absent, and often the cervical veins are but slightly distended. Not infrequently there is undulation at the spot where the distention of the vein ceases. This may be systolic only, or double, and synchronous with the heart-beats. The valves in the external jugular veins are usually competent, and the veins empty completely with each inspiration. The effect of pressure below the ribs varies in these cases with the amount of obstruction to the venous return: 1. In the least-marked cases, the vein, although not perceptibly distending under the pressure, is seen, nevertheless, not to empty completely during inspiration. 2. In others a degree more severe, a moderate distention results; the vein becomes visible as far as the anterior border of the sterno-mastoid muscle, more rarely as high as the angle of the jaw. At the same time the spot where undulation was visible becomes shifted higher up the vein, and the character of the undulation is not infrequently modified, the double variety being replaced by a single systolic flicker, the single variety occasionally disappearing altogether. 3. In cases yet more severe, but in which the usual signs of tricuspid regurgitation are not developed, the pressure sign is often elicited with great distinctness, with or without undulation, and is here to be regarded as indicating early tricuspid failure. In the second class of cases, which differs from the third in degree, only there is great over-distention of the right heart, falling short, however, of re-

gurgitation, possibly with excessive strain on the valve-cusps.

The mechanism of the production of this phenomenon is probably complex. Without presuming to offer a complete explanation, Dr. Pasteur suggests that the following factors probably enter into it: 1. Compression of the inferior vena cava by the liver, especially in cases where this organ is enlarged. This factor, however, probably acquires more importance in cases of tricuspid regurgitation, with pulsating liver. 2. Lessening of the inspiratory action of the thorax through interference with the movements of the diaphragm. 3. Direct mechanical interference with the proper movements of the right side of the heart. A glance at the anatomical relations of the right auricle and ventricle to the diaphragm and subjacent liver will suggest the possibility, not to say probability, of such interference.

There can be little doubt that the effect of subcostal pressure, whatever the mechanism of its action, is to put increased difficulties in the way of the proper action of the right side of the heart, so that the pressure-sign in cases where the tricuspid valve is considered to be still competent is to be looked upon as a measure of the capacity still possessed by the right heart to combat increased resistance. In cases where the tricuspid valve is incompetent, the effect of the pressure is to aggravate the conditions under which the heart is already unable to do its work, with a proportionate increase in the signs of that inability. This subcostal pressure-sign possesses undoubted value as a means of diagnosis, and may also afford valuable information as to the progress and ultimate prognosis of many cases in which we are now reduced to mere conjecture for want of some definite, tangible index of the condition and working power of the right side of the heart.

A NEW DIAGNOSTIC TEST FOR TYPHOID FEVER.

Statistics regarding the therapeutics of typhoid fever are almost always seriously vitiated by doubts as to diagnosis. This is more especially the case with the alleged abortions of typhoid. It is very desirable, therefore, to have some definite test of the presence or absence of the disease in its early stages. The temperature curve is known to be often far from typical; the roseola does not appear, if at all, until from seven to twelve days; there are, in fine, no pathognomonic symptoms in the earlier stage of the disease.

Several observers have recently tried to establish a method of making the typhoid bacillus of Eberth a means of positive diagnosis. This bacillus is now quite generally conceded to be a constant accompaniment of the disease in question, and of no other.

Attempts to find this bacillus in the blood have not been very successful, although Neuhaus (*Berlin. Klin. Wochen.*, 1886, No. 6) observed them in blood taken from incisions made near the roseola spots. M. Bouchard has also found the bacillus in the urine. Recently Philopowicz (*Wien. Med. Blatt.*, 1886, Nos. 6 and 7; *L'Union Médicale*) has communicated the results of his personal experience in the examination of blood drawn from the spleen of typhoid patients. Having washed the skin with a solution of bichloride, 1 to 1000, he inserted the needle of a hypodermic syringe, previously sterilized, between the ninth and tenth ribs, and withdrew some of the splenic blood and juice. In this he was able to recognize the bacilli of Eberth, and produced cultivations showing their specific character. All this was done in four patients, before the appearance of any roseola. There does not seem to be any great inherent difficulty in using this method of testing the nature of a suspected fever, provided, of course, that subsequent experience confirms the results of Philopowicz. Such a method cannot be made a routine one, but in hospitals it may be frequently used, and by it perhaps the much-disputed question as to whether typhoid fever is ever aborted can be settled.

In this connection the editors of the *New York Med. Rec.*, May 22, 1886, call attention to the daring experiments of M. Payon (*L'Union Médicale*, No. 115, 1885), who inoculated pure and attenuated cultures of the typhoid bacillus upon himself and five other persons, without producing any definite symptoms of typhoid fever as it occurs in man.

THE ACTION OF ANTIPYRIN.

Dr. J. H. Frankenberg reports in the *Med. Rec.*, May 22, 1886, that his experience with antipyrin for the last eighteen months warrants the following conclusions:

1. We possess in antipyrin an antipyretic which will reduce temperature most powerfully and rapidly.

2. It is in the great majority of cases perfectly safe; only in very much depreciated states and in delicate children must it be warily given and guarded by cardiac stimulants.

3. It lacks nearly all the disagreeable features which other antipyretic drugs possess. Perspiration occurs in a large proportion of cases, but does not seem to enervate the patients or render them uncomfortable. Pruritus occasionally coexists with the eruption. Vomiting now and then occurs.

4. It may readily be introduced into the system through various channels. Its taste is not particularly disagreeable, and may be easily disguised by some aromatic. Hypodermically given, it acts more decidedly and rapidly, and avoids the possibility of disturbing the stomach. It is unirritating. It may also be given per rectum.

5. It cannot cope with quinine as an antiperiodic or tonic, nor with salicylic acid in acute articular rheumatism.

6. It has practically no influence upon the pulse and respiration. If the pulse be dichrotic, the secondary wave entirely, or nearly, disappears. In other words, it raises the arterial tension.

In conclusion, he says that very little doubt is entertained but synthetic chemistry will develop many new compounds which may prove of avail at the bedside as antipyretics; but it is our firm conviction that at the present day antipyrin, in sufficiently large doses, is the most powerful, the most certain, and the safest antifebrile drug that we have in our materia medica.

CONTRIBUTION TO THE KNOWLEDGE OF ALBUMINATES IN MILK.

SEBELIEN describes in the *Zeitschrift für Phys. Chemie*, vol. ix. p. 444, two new albuminates of milk besides caseine, viz., lactoglobulin and lactoalbumen.

1. To obtain lactoglobulin, the milk is first carefully neutralized with soda lye, in case it be of an acid reaction, and then saturated with chloride of sodium. The filtrate on being warmed produces a flocculent precipitate, which consists principally of phosphate of lime; the filtrate of this, on being saturated with sulphate of magnesium, precipitates lactoglobulin. The percentage of lactoglobulin contained in milk is very small.

2. Lactoalbumen is obtained by adding one-fourth per cent. of acetic acid to the filtrate of milk, mixed with sulphate of magnesium. By solution in water, dialysis, precipitation of the remaining solution through alcohol, and washing with alcohol and ether, lactoalbumen can be obtained as a white powder, wholly soluble in water. Lactoalbumen is by no means identical with serum albumen, and differs from caseine in containing a higher percentage of sulphur (the former having fourteen per cent., the latter seven per cent.), and a lesser percentage of phosphorus.

THE CIRCULATORY AND RESPIRATORY CHANGES IN ANIMALS PLACED IN THE PNEUMATIC CABINET.

The great objection to the use of the pneumatic cabinet has been that we have no knowledge of the physiological effect of rarefied and compressed air applied under these conditions on the respiration and circulation. These conditions have been investigated by PROF. H. N. MARTIN and DR. FRANK DONALDSON, who have published their results in the *New York Med. Journ.*, May 15, 1886. Their experiments were made on rabbits narcotized with chloral in whom the trachea was connected with a Marey's tambour, which recorded on the kymograph paper the rate and extent of breathing movements, while the arterial pressure and pulse were recorded at the same time. The authors have tabulated their results as follows:

I. When the animal is breathing air from outside the cabinet, rarefaction of air within the cabinet causes a marked fall of general arterial pressure, but has no influence on the pulse-rate. The fall of pressure lasts a short time only (ten to twenty seconds), and is followed often by a temporary rise above the normal.

II. This fall of systemic arterial pressure depends on two factors: greater flow of blood to the skin when the air around the animal is rarefied, and greater accumulation of blood in the lungs when they are distended.

III. Of these two factors, accumulation of blood in the lungs is the more effective; for, if the animal breathes air from the cabinet and not from outside, rarefaction of air within the cabinet (in this case accompanied by no special expansion of the thorax) has but a trivial effect in lowering arterial pressure.

IV. When the animal is breathing external air, rarefaction of the air within the cabinet usually has no effect upon the respiratory rate or the extent of individual respiratory acts, unless the fall of blood-pressure is considerable. If it is considerable, symptoms of anæmia of the medulla oblongata are seen. In most cases there is more forcible dyspnœic breathing; in some there are dyspnœic con-

vulsions similar to those which occur when an animal is bled to death, and due to the same cause, viz., deficient blood-flow to the respiratory centre.

V. The rapid recovery of general arterial pressure, while the animal is still in a rarefied atmosphere but breathing external air, is probably due to excitation of the vaso-motor centre, which, as is well known, is excited whenever its blood-supply is defective.

VI. The brain, inclosed in a rigid box, which is practically unaffected by variations in atmospheric pressure, has its circulation more disturbed in the pneumatic cabinet than any other organ except the lungs.

VII. Compression of the air within the cabinet, while the lungs are in communication with the exterior air, causes a considerable but transient rise of blood-pressure. This is probably mainly due to the forcing of blood from the cutaneous vessels; but the authors have not yet had opportunity to thoroughly investigate this point.

VIII. Compression of air within the cabinet, while the lungs are in communication with the exterior air, slows the pulse as the arterial pressure rises. This is probably due to excitation, by increased intra-cranial blood-pressure, of the cardio-inhibitory centre; but further experiments are necessary before this can be positively stated.

IX. In certain cases, when the air within the cabinet is rarefied and the animal is breathing external air, the respiratory movements cease altogether for several seconds. As to the cause of this physiological "apnœa" the authors are not yet ready to form an opinion. It may be due to the extra accumulation of air in the alveoli of the lungs, or to distention of the lungs exciting those fibres of the pneumogastric which tend to check inspiration.

Such, in brief, being the physiological effect of rarefied and compressed air as applied in the Ketchum cabinet, how should this knowledge affect the practical use of this apparatus? It having been found that even very great rarefaction of the air in the cabinet produces but slight effect on the circulation, provided the animal is breathing the air within the cabinet, Dr. Donaldson concludes:

1. That rarefaction of the air when the person first enters the cabinet (as directed by Mr. Ketchum), in order that the residuual air may expand, and so drive out any plugs of mucus in the lungs, may be done without danger to the individual. In view of the great and sudden fall of arterial pressure when the animal is breathing outside air, and the air within is rarefied, he concludes:

2. That the air in the cabinet should never be suddenly rarefied, and that the motion of exhaust should invariably be slowly made, and the amount of rarefaction small, particularly at the first treatments. This sudden fall of arterial pressure depending as it does upon an increased blood-flow to the skin and an accumulation of blood in the distended veins and lung alveoli, he concludes:

3. That, before deciding a person to be a proper subject for treatment by pneumatic differentiation, *thorough examination* should be made of the *heart;* and that no person found to have pronounced insufficiency or stenosis of the mitral valve, or the slightest tricuspid regurgitation, should, under any condition, be placed in the pneumatic cabinet; for it is plain that rarefaction of the air would be most dangerous in such cases. The fall of arterial pressure would seem to depend chiefly upon the accumulation of blood in the lungs, for, if the animal breathes air from the cabinet and not from outside, rarefaction of air within the cabinet has but a trivial effect upon arterial pressure. From this fact he concludes:

4. That the liability to pulmonary hemorrhage is very slight, though greater perhaps than Dr. Williams has supposed. It having been proved that compression of the air within the cabinet, while the animal breathes external air, causes a considerable rise in arterial pressure, and slows the pulse from the increase of intra-cranial blood-pressure, he concludes:

5. That old persons, with possibly atheromatous arteries, are not, generally speaking, proper subjects for the pneumatic chamber, especially where their trouble is emphysema or asthma, and compression of the air within the cabinet is made use of in order to assist expiration.

Again, in view of the sudden and pronounced fall in arterial pressure following rarefaction, and of the considerable though transient rise of the same following compression of the air in the cabinet, he concludes that the method of differentiation should be practised with much care and discrimination in all cases, and that the actual movements of exhaust and compression should be made always very slowly and gently.

Finally, the Ketchum cabinet should be in the hands of careful auscultators only, for in those of the inexperienced or careless great harm may be done.

SYPHILIS AS A FACTOR IN EAR-DISEASE.

WOAKES believes that syphilis is a frequent cause of obstinate otorrhœa (*Centraibl. f. Med. Wissen.*, No. 1, 1886), and usually affects both ears. Caries is an almost permanent complication of syphilitic otorrhœa. Finding in several cases of otorrhœa with a syphilitic base that the cicatrices of leech-bites assume a copper hue, Woakes recommends the application of leeches for diagnostic purposes in doubtful cases.

The same author publishes a case in which he felt justified in diagnosticating a gumma in the tympanic cavity. A man, 25 years of age, had acquired a chancre two years ago, and suffered for three months from hard hearing and tinnitus aurium. The tympanic membrane was found to be normal, but an opaque mass could be seen through it, which reached very near to its inner surface. Besides, there existed a catarrh of the Eustachian tube and the pharynx. The local treatment remaining without success, Woakes ordered inunctions of blue ointment nightly, and found the hard hearing and the mentioned opaque mass disappeared after two weeks.

THE ACTION OF KAKODYLIC ACID ON THE ANIMAL ECONOMY.

The only arsenic compounds in which the toxic properties of the arsenic are doubtful are the so-called arsenic methyl bodies or kakodylic compounds, and even as regards these there is much conflicting testimony. This is especially the case in regard to kakodylic acid, and therefore, as tending to clear up this matter, the experiments of DRS. JOHN MARSHALL and WALTER D. GREEN (*Amer. Chem. Journ.*, May, 1886) are particularly of interest. These authors quote a number of authorities, which seem to show that large doses of this substance may be introduced into the animal economy without producing the slightest symptoms of poisoning. On the other hand, Lebahn declares, from the results of his experiments, that kakodylic acid does possess poisonous properties, and that its toxic symptoms are like those of ordinary arsenical poisoning. Drs. Marshall and Green have repeated these experiments on one cat and three rabbits, using a preparation obtained from a Philadelphia manufacturer. In these experiments vomiting was produced, and considerable disturbance of the health, such as profuse salivation and urination, but in no case did a fatal result occur except in the case of one of the rabbits. In all the cases the presence of kakodylic acid was determined in the urine, and the garlicky odor due to kakodylic compounds was strongly apparent upon the breath. In the fatal case the whole alimentary tract showed evidences of a severe gastro-enteritis, kakodylic acid was detected in the kidneys, but was not found in the brain. The purity of the substance was then tested, and it was found that it was contaminated with arsenious oxide. The results of the above experiments, therefore, naturally vitiated the value of any conclusions as to the action of kakodylic acid. Experiments were then begun with kakodylic acid obtained from Kahlbaum, of Berlin, which was found to be perfectly pure. This introduced into the stomach, in doses of ½ gramme repeated several times, produced vomiting and diarrhœa, and evident inflammation of the alimentary tract. The garlicky odor was evident on the breath, and kakodylic acid was in every case found in the urine. In several other instances administration of various-sized doses of this substance produced the same symptoms of profuse salivation, staggering, weakness, vomiting, and diarrhœa, and in one case produced death. The authors' experiments therefore show that kakodylic acid produces symptoms analogous to those of arsenious oxide, though the results are not necessarily fatal. The action of the acid is the same, whether given by the mouth or injected directly into the circulation. The authors conclude, however, from their results that kakodylic is not a poisonous substance in the general acceptation of the word poison. The formula for kakodylic acid is $(CH_3)_2AsO.O.H.$, and it contains 54.35 per cent. of metallic arsenic, equal to 71.4 per cent. of arsenious oxide.

THE ETIOLOGY OF TRAUMATIC TETANUS.

DR. ROSENBACH, at the Congress der Deutschen Gesellschaft für Chirurgie zu Berlin, held at Berlin on April 7, 1886, made some very interesting remarks concerning the etiology of traumatic tetanus. We condense the report of the *Berliner Klinische Wochenschrift* of April 19, 1886, as follows: All efforts to artificially produce traumatic tetanus, or to transfer the affection from man to animal, or *vice versa*, and to thus prove its infectious character, have hitherto been fruitless. The inoculation of blood and pus of tetanic men into animals remained invariably without results; dogs especially appeared

wholly refractory to tetanus. Quite recently, however, Nicolaier found that in certain animals, such as rabbits, guinea-pigs, and mice, the inoculation of ordinary garden earth produced besides malignant œdema an actual tetanus. Almost simultaneously Rosenbach succeeded in transferring tetanus from man to animals. This observer took from a man affected with tetanus, resulting from frost-bites on the feet, a particle of nervous tissue from the neighborhood of the affected parts, and successfully transplanted the material to mice and guinea-pigs. Repeated experiments led also to the preparation of a pure culture, in which he demonstrated as the pathogenetic microbe of tetanus exactly the same minute bristle-like bacillus which Nicolaier had found in garden earth. It is fair to assume that this bacillus gives rise to the production of a poison similar to strychnine, which causes the general convulsions. At all events the infectious nature of tetanus can no longer be positively denied.

SALOL, OR SALICYLIC OF PHENOL.

This is a new antiseptic that has been discovered by PROFESSOR VON NENCKI, of Berne, Switzerland. It seems destined to take the place of salicylate of sodium, first of all in the treatment of rheumatism, and it may also succeed many of the other antiseptics. The unpleasant taste of the sodium salicylate is known in all hospitals, and it so frequently produces nausea followed by a fainting-fit that for many patients it soon becomes intolerable. The new body, salol, is a white body, slightly greasy to the touch, and having a slight aromatic odor, but no taste. It is almost insoluble in water, but soluble in alcohol.

M. Von Nencki first tried it on animals, and found that all the salol given with the food was found in the urine in the form of urate of salicyl: so that in the organism there was only a simple decomposition without any modification of the composing parts of the salol. Following up his experiments, M. Von Nencki found that it was the pancreatic juice that caused this transformation,—so that it was in the duodenum, and not in the stomach itself, that the decomposition took place; from which fact he explained the absence of nausea, etc., in the administration of the drug. From 6 to 8 grammes of it is now given per day. The urine of the patients becomes almost black, just as though they had taken carbolic acid itself; but there are no bad consequences from this. Given in all the different rheumatismal affections, it has met with a greater success than the salicylate of sodium, reducing all fever much quicker than the sodium salt. It is also an antipyretic, and it has been tried in phthisis with a result of diminishing the temperature four degrees Centigrade (from 40° to 36°). It is advised to commence in these cases with small doses (0.50 centigramme). Salol would be indicated also in diabetes, as phenol is given. Again, it is given as a local antiseptic in all intestinal catarrhs, and, as Levachoff has demonstrated that salicyl dilutes bile, it may be given in typhoid fever to disinfect the ulcerations, and used also in cholera, and against all intestinal parasites. One of its important uses will most likely be in catarrhs of the bladder. Urine in which it was placed kept without decomposition for over six weeks, and in all cases the patient's urine became completely aseptic. Again, salol is almost insoluble, and its use as an antiseptic in place of iodoform has already given such results that we may be able to get rid of the last-named disagreeable substance and the dangerous corrosive sublimate. If salol does not kill the bacilli, it certainly prevents their development: so it is suitable more than any other known substance to powder wounds with.—*Philadelphia Medical Times*, May 15, 1886.

THE TREATMENT OF THE ROUND GASTRIC ULCER WITH ALBUMINATE OF IRON.

It is a well-known fact that the affection known as the round or perforating gastric ulcer occurs very frequently in girls and women of the chlorotic type, and that besides other anæmic conditions, especially those following upon a protracted lactation, predispose to the gastric ulcer. Etiologically very different opinions are held; while Virchow and Rokitanski emphasized the narrowness of the lumen of the vessels alongside of a premature fatty degeneration of the vascular walls, other observers accused the abnormal secretion of the gastric juice as the cause of the ulcer.

Still, however different the opinions may be regarding the exact causation of gastric ulceration, all pathologists agree as to the relation existing between the affection and anæmia or chlorosis. The reason that the gastric ulcer, in spite of its unquestioned relation to anæmia, is not treated by preparations of

iron, refers, of course, to the digestive disturbance which this class of medicines is pretty certain to create. Peters (*Blutarmuth und Bleichsucht*, p. 17, Leipzig, Weber), Neuss (*Zeitschrift für Klin. Med.*, 1881, vol. iii. No. 1), and other therapeutists have even published especial papers to prove that iron is positively contraindicated in gastric ulcer.

In view of the foregoing facts, we are rather surprised to find in an article appearing in the *Berl. Klin. Woch.* of April 12, 1886, iron advocated as an effectual remedy of gastric ulcer. The published observations were made by Dr. te Gempt with the liquor ferri albuminati prepared by Dr. Drees, an apothecary of Bentheim (Hanover).* This drug represents a salt in which the acid, as it were, has been substituted by albumen. It is of a neutral reaction, free from a metallic or astringent taste, well preservable, and highly resorbable.

Gempt had previously ascertained, in an experience of five years, that in chlorosis and anæmia the albuminate solution of iron was the most digestible and reliable of all preparations of iron. And, after having tried the remedy with success in the reconvalescence following upon gastric ulcer, he began to cautiously administer the drug also in such cases in which the gastric ulcer was still present. The dose used by our author was ½ to 1 f3 given three times daily to adults, and 5 to 30 drops for children, always to be taken before meal-time. If a diluent be desirable, milk is the best vehicle. The absence of acidity in the drug precludes any injury to the teeth or the mucous membranes of the digestive tract. Hence, Gempt observed in no instance, even after an uninterrupted use of several months, gastric pains or digestive troubles resulting from the remedy.

It requires an especial mentioning that the drug appeared to exercise a direct influence upon hemorrhages from the stomach. The Carlsbad salt was found a useful adjuvant to the albuminate of iron. In conclusion, Gempt makes the important statement that, aside of numerous other affections, this preparation of iron has repeatedly proved a cure in the incipient stages of pulmonary phthisis, the so-called catarrhs of the apex.

If the albuminate of iron should in reality be found to be wholly exempt from the objectionable features of the rest of the preparations of iron, and at the same time to possess their medicinal value, the field of practical usefulness of iron would be widely increased.

* Merk's liquor ferri albuminati differs from the above in being of an acid reaction, of an astringent taste, and in coagulating milk and chyle.

ARSENITE OF BROMINE IN DIABETES MELLITUS.

Following the advice of Dr. Austin Flint, Jr., Dr. N. S. Davis, Jr. (*Journ. of the Amer. Med. Assoc.*, May 8, 1886), has been testing the value of liq. brom. arsenitis, and reports that all the cases in which he has administered it have uniformly been improved. The treatment consisted in directions as regard diet, and the use of the arsenite of bromine in doses of 3 to 5 drops three times daily. Of course it is very doubtful as to whether the improvement in the cases reported by Dr. Davis was due to the medicine which was given or to the restrictions of the diet, since, as is well known, the latter alone, without any medication, will, in many cases, be sufficient to produce decided improvement. Dr. Davis gives the following summary as to restrictions in diet which are advisable :

ARTICLES OF FOOD FORBIDDEN.

Bread, cake, pastry of all kinds, and food prepared with flour, cracked wheat, oatmeal, rice.

Potatoes, turnips, beets, beans, corn, carrots.

Prunes, grapes, figs, bananas, pears, apples, preserved fruits.

Liquors of all kinds, whether distilled or fermented.

ARTICLES OF FOOD PERMITTED.

Soups, except those rich in vegetables, meat of all kinds, fish, egg, oysters.

Radishes, cucumbers, cresses, celery, lettuce, spinach, cauliflower, cabbage, tomatoes, oyster-plant, onions, string-beans, parsley, mushrooms, salads, pickles, olives, oil.

Lemons, gooseberries, currants, sparingly of raspberries, strawberries, oranges.

Milk, tea and coffee without sugar, but with glycerin in its place if desired.

More or less variation can be allowed from this in mild cases, and in severe cases more rigor may be required, although it is difficult to hold a patient to a diet more rigid than the above.

THE RADICAL CURE OF VARICOCELE.

To the large number of operations which have been devised for the cure of varicocele yet another has been added by M. Richet, of the Hôtel Dieu. It is described in the

Revue de Chirurgie for April by M. Picqué, who is disposed to laud it. The vas deferens is first separated from the bundle of veins to be obliterated, and held out of the way by a thread of copper wire passed through the scrotum in an armed needle. The veins and the fold of scrotum over them are then grasped by the blades of forceps heated to a red heat, such as M. Richet uses for the destruction of hemorrhoids. A wound of some size is left, and cicatrization is obtained in about three weeks. M. Picqué argues that excision of the veins is the best of all the many operations for varicocele, but that it should only be undertaken by those who are quite familiar with the aseptic treatment of wounds. In cases where the surgeon is not confident of his ability to keep the wound aseptic, he recommends Richet's operation. We cannot join in such advice. Richet's operation appears, from the description given of it, to be a very rude method of obtaining a result more easily, more quickly, and better obtained by other means.—*Lancet*, May 8, 1886.

ON DISINFECTION BY HIGH TEMPERATURES.

In *Virchow's Archiv* (vol. cii. p. 81), WOLF publishes the results obtained with experiments in the use of heat as a disinfecting medium. He used milzbrand-spores (anthrax, splenic fever) dried up on silk threads and placed in mattresses, and observed the action of heat on these organisms. He found that even an influence of 140° C. applied for four and a half hours did not suffice to kill the microbes. Quite different results though were obtained by the application of vapor of water, obtained from Schimmel's or Bacon's stove. Wolf formulates his conclusions as follows: 1. For dry objects, watery vapor at the temperature of 100° C. is required for one to one and a half hours to obtain a thorough disinfection. 2. For wet objects, a vapor of 100° C. is required for two hours. 3. The temperature of the interior portions of the object must be at least 100° C. 4. Hot watery vapor of 100° C. possesses a higher disinfecting power than hot dry air of a much higher temperature. 5. The objects of disinfection must be destroyed, together with the micro-organisms. 6. The applicability of this method of disinfection, employed alone or in connection with dry air, is a very extensive one.

THE BULLOUS FORM OF IODIC ERUPTION.

From a careful study of the bullous form of eruption produced by the administration of iodine, DR. PRINCE A. MORROW draws the following conclusions (*Journ. of Cutaneous and Venereal Diseases*, May, 1886):

1. The bullous form of iodic eruption is comparatively infrequent.

2. It has for its seat of predilection the face, neck, forearms, and hands; exceptionally it may occur upon trunk and lower extremities.

3. There seems to be no definite relation between the amount of the drug ingested and the production of the eruptive accidents; they may follow, indifferently, a single insignificant dose, or may appear only after the long-continued use of large doses.

4. In the former case, the incidental effects of the drug upon the skin depend upon idiosyncrasy, in the latter class of cases the pathogenesis is more obscure.

5. The proneness of this eruption to develop in connection with cardiac and renal disorders would seem to indicate that these conditions stand in the relation of a determining cause, rather than a mere coincidence.

6. The practical inference may be drawn that caution should be observed in the administration of iodide of potassium when these complications are found to exist.

THE SURGICAL TREATMENT OF ECZEMA.

BOKHART advocates, in the *Centralblatt für Medicinische Wissenschaften*, 1886, No. 4, the following surgical treatment of circumscribed eczemata of long standing, especially when situated on the trunk or the extremities (except on the hands). The affected portion is to be anæstheticized with the ether spray after the patient has received an injection of morphine; then the part is to be deeply scarified by a double-edged bistoury, making cuts parallel to each other. The bleeding is stopped by compresses, and the part operated upon is rubbed with the officinal potash lye until the thickened epidermis begins to fall off. Then the potash lye is carefully washed off and the part dressed with Hebra's ointment or olive oil, to be replaced by a water dressing after twenty-four hours. After another twenty-four hours, the part operated upon appears like an extensive ulceration,—surface covered with many transplanted particles of skin. The healing process is now

to be favored by a dressing composed of pyrogallic acid or nitrate of silver, which is to be renewed every third day. This mode of treatment prevents relapses and all cicatrization save some few linear marks.

THE SURGERY OF THE PANCREAS.

A paper entitled "The Surgery of the Pancreas, as based upon Experiment and Clinical Researches," was read by DR. SENN at the recent meeting of the American Surgical Association (*New York Med. Journ.*, May 15, 1886), from which the following conclusions were drawn:

1. Restoration of the continuity of the pancreatic duct did not take place after complete section of the pancreas. 2. Complete extirpation of the pancreas was invariably followed by death, produced either by the traumatism or gangrene of the duodenum. 3. Partial excision of the pancreas for injury or disease was a feasible and justifiable surgical procedure. 4. Complete obstruction of the pancreatic duct, uncomplicated by pathological conditions of the parenchyma of the organ, never resulted in the formation of a cyst. 5. In simple obstruction of the pancreatic duct the pancreatic juice was removed by absorption. 6. Gradual atrophy of the pancreas from nutritive or degenerative changes of the secreting structure was not incompatible with health. 7. Physiological detachment of any portion of the pancreas was invariably followed by progressive degeneration of the glandular tissue. 8. Extravasation of pancreatic juice into the peritoneal cavity did not produce peritonitis. 9. Crushed or lacerated pancreatic tissue was removed by absorption, provided the site of operation remained aseptic. 10. Complete division of the pancreas by elastic constriction was never followed by restoration of interrupted anatomical continuities. 11. Limited detachment of the mesentery from the duodenum, as required in operations upon the pancreas, was not followed by gangrene of the bowel. 12. In all operations upon the head of the pancreas the physiological attachment of the peripheral portion of the gland should be maintained by preserving the integrity of the main pancreatic duct. 13. Partial excision of the splenic portion of the pancreas was indicated in cases of circumscribed abscess and malignant tumors in all cases where the pathological product could be removed completely without danger of compromising pancreatic digestion, or of inflicting additional injury upon important adjacent organs. 14. Ligation of the pancreas at the point or points of section should precede extirpation as a prophylactic measure against troublesome hemorrhage and the extravasation of pancreatic juice into the peritoneal cavity. 15. The formation of an external pancreatic fistula by abdominal section was indicated in the treatment of cysts, abscess, gangrene, and hemorrhage of the pancreas due to local causes. 16. Abdominal section and lumbar drainage were indicated in cases of abscess or gangrene of the pancreas where it was found impossible to establish an anterior abdominal fistula. 17. Through-drainage was indicated in cases of abscess and gangrene of the pancreas, with diffuse burrowing of pus in the retro-peritoneal space. 18. Removal of an impacted pancreatic calculus in the duodenal extremity of the duct of Wirsung by taxis, or incision and extraction, should be practised in all cases where the common bile-duct was compressed or obstructed by the calculus, and death was threatened by cholæmia. 19. In such cases the principal source of danger, extravasation of bile into the peritoneal cavity, should be avoided by preliminary aspiration of the dilated bile-ducts, accurate closure of the visceral wound with fine silk sutures, and absolute physiological rest of the organs of digestion during the time required for the healing of the visceral wound.

COMMUNICATIONS FROM THE DIPHTHERIA WARDS OF THE CHARITÉ.

HENOCH'S report on diphtheria, as observed in the wards of the Royal Charité at Berlin (*Charité Annalen*, vol. x. p. 490), embodies much interesting and valuable material.

Diphtheria increases, as appears from the publications of the bureau of statistics, yearly in Berlin, both regarding frequency and malignancy. The same observations could be made at the Charité. From the years 1876–1883 the number of diphtheria patients increased enormously, viz., from twenty-six to one hundred and eighty-three. About two-thirds of all cases belonged to the period between the second and sixth year of life. The mortality rate is most unfavorable in the first three years of life.

Of 319 cases observed, 208 died (an enormous percentage). It must be taken into consideration, however, that, aside from a grave epidemic nature and the naturally unfavorable conditions of a large old hospital, only genuine cases of diphtheria are included in the above statement.

Of the 319 cases, 174 took their course without exceeding the region of the pharynx; of these, 95 were cured and 79 died. This great number of cases with a lethal exit, which did not terminate under symptoms of croup, confirm the frequently-noted fact that the very gravest septic forms of diphtheria show no tendency to extend downward, not even when they attain a duration of seven days and more. One hundred and forty-five cases assumed a croupous nature, and were all operated upon with the exception of 7 cases. These 7 patients perished, while of the 138 operations only 16 (about eleven and a half per cent.) were successful. These figures show that in spite of all dangers which lie in the diphtheritic infection itself, the termination in croup slays the greatest number of victims. Henoch regards the combination of grave septic symptoms with those of croup as the only tenable contraindication to the operation of tracheotomy. Among the causes of death after tracheotomy we find, besides affections of the respiratory organs mentioned, diphtheritic collapse, erysipelas, and (in three instances) convulsions appearing twelve to forty-eight hours after the operation; for these no valid reason could be assigned even after the autopsy. Otitis media was observed only in three cases; rhinitis diphtheriticus, however, in very many instances, even in those which terminated in a cure.

The conjunctiva palpebrarum was but rarely, and only in grave cases, affected. Erythemata occurred in three cases, scarlet fever in many, nephritis in some. When in presence of nephritis symptoms of cardiac weakness set in, injections of camphor, ether, and strychnine were employed, to which, in some instances, Henoch attributed the recovery. In diphtheritic paralysis hypodermic injections of 1 to 4 mg. of strychnine constituted Henoch's routine treatment. Of prolonged diphtheritis Henoch noted also a few cases, one of which lasted over two months up to its recovery.

In conclusion, Henoch declines to admit that any of the vaunted specific measures can be regarded as reliable.

PIPERONAL.

This is an aldehyde, corresponding to piperonilic acid, obtained as a product in the oxidation of piperina. It occurs in the form of small, white, prismatic scales, possessing a strong odor resembling that of vanilla. A small quantity placed upon the tongue produces a sensation analogous to, but more persistent than, that caused by mint, and it is more irritating to the mucous surfaces than is the latter. It melts at about 125° F., and at a higher temperature volatilizes without leaving any residue. When ignited, the flame and smoke resemble the appearance of burning camphor. It is insoluble in cold water, but in hot water it melts, and looks like drops of oil; it dissolves readily in alcohol and ether. Dr. Riccardo Frignani has made a number of experiments with this substance (*Giornale Internazionale delle Scienze Mediche*, No. 2, 1886), as a result of which he states that it possesses both antipyretic and antiseptic properties. The antipyretic action is not of the most active or energetic kind, yet is sufficient in many cases. It is best given in 15-grain doses, repeated every two hours for three or four times a day, but much larger and more frequent doses are well borne. The most noteworthy disagreeable effects are nausea, eructations, and dryness of the throat. Its antiseptic action, however, the author states, is much more marked, and, since it is innocuous to the system, even when given in doses of ½ to 1 drachm, he believes that it is deserving of a high rank among drugs of this class.—*New York Med. Rec.*, May 15, 1886.

WHICH FOOD-STUFFS ARE DIGESTED MOST EASILY BY THE STOMACH?

To solve the important problem embodied by this heading, Bikfalvi instituted at the Physiological Institute of Klausenburg numerous experiments on dogs by means of artificial digestion. We find the main results of these researches quoted in the *Centralblatt für Med. Wiss.* of February, 1886.

The gelatinous substances, especially the constituents of tendons, appeared to be digested in far greater quantities than pure albumen and organic matters rich in albumen. The experiments on dogs gave the following results. These were digested in two hours:

1. Of raw caseine	25	per cent.
2. Of boiled egg	41	"
3. Of raw ligam. nuchæ	49.5	"
4. Of raw liver	52.5	"
5. Of raw kidney	55.33	"
6. Of boiled beef	58	"
7. Of raw unstripped muscular tissue	68.5	"
8. Of raw beef	79.5	"
9. Of raw hyaline cartilage	81	"
10. Of raw fibrin	97.5	"
11. Of raw lung	99.5	"
12. Of raw tendon	95.5	"

The experimenter concluded that the gas-

tric juice of carnivorous animals digests principally the gelatinous substances, and that the digestion of albumen falls chiefly to the action of the pancreatic gland.

THE TREATMENT OF IRREDUCIBLE INGUINAL HERNIA BY ELASTIC PRESSURE.

MR. WM. ELDER reports in the *Brit. Med. Journ.*, May 8, 1886, a case of a man in whom an irreducible inguinal hernia was treated by pads of cotton wool and an elastic bandage, with the result of entirely overcoming the hernia. The case was of a man, aged 56, who had had a small hernia for more than thirty years. He had never worn a truss, or used any means to prevent the hernia from coming down. Recently the difficulty in reducing it had greatly increased, and the tumor had become much enlarged, and finally it became irreducible. The swelling was found to consist chiefly of bowel and omentum, the latter being so much indurated that it felt wherever it was touched as hard as a stone. There was no pain upon pressure, and on palpating the tumor a sort of a gritting sensation was felt as if there was fluid in the sac. The bowel could be reduced, but very little difference could be made in the omentum; reduction under chloroform also failed, and elastic pressure was then applied by means of a padding of salicylic wool and an elastic bandage in the form of a single spica. On removing the pad the next day the hernia was found to be much reduced in size and all the crepitating sensation was gone. The bandage was now kept on for nearly three weeks, resulting in the entire cure of the hernia, which now is entirely reduced, and is readily retained by a truss. Two points appear worthy of notice in this case: first, the efficacy of the elastic pressure in the treatment of irreducible hernia; and second, the method of applying the pressure. The first of these is self-evident, viz., that continued elastic pressure carefully applied must reduce an indurated hernia in size, and by reducing its size must make it more easy to reduce. Secondly, as to the means of applying the pressure. At first the bandage was applied as a single spica in the case above alluded to of Mr. Elder, but it was found that the swelling was more apt to make its way out below the bandage by passing towards the middle line. The bandage was then applied more in the form of a double spica. Mr. Elder began the bandage at the right anterior and superior iliac spine, crossed the abdomen to below the left trochanter major, then round the thigh and across the perineum to the right groin and right anterior superior iliac spine, where it was pinned to the beginning of the bandage. Then it was wound round the back, above the iliac crests, to keep it from slipping down. He then brought it down over the hernia, on the left side, across the perineum, and round the right thigh, over the front of the abdomen to above the left iliac crest, and round the back to the right anterior superior iliac spine, where the bandage began. He then went on as before, following the same course, but making the bandage above slightly overlap the one below, until he got all the pubic region covered, except a small space in the middle line for the penis. This opening, which always weakens the pressure, must not be too large, otherwise the hernia will tend to escape through it. This bandage had only been once on when the hernia disappeared.

Another point is, that enough wadding must be used in order that, when the bandage is on, it may not pain the patient, and in order that the pressure may be equal all round the hernia. It is not necessary to put the bandage on very tightly, as it gradually becomes tighter the longer it is kept on. The different layers of bandage must be pinned to each other, to prevent them from slipping out of their place.

ON REVACCINATION.

In an essay on the revaccination of young individuals, published by DR. JULES BESNIER in the *Revue Mensuelle des Maladies de l'Enfance* (February, 1886), this author establishes the following conclusions:

1. The number of successful revaccinations in young subjects revaccinated for the first time increases with the advancing years, and reaches its maximum at the period of fifteen to twenty years. In adults revaccinations are less frequently successful than in young subjects.

2. Certain diseases favor a successful revaccination at certain periods of life: among these are the affections of the typhoid type. The ordinary eruptive fevers of childhood and the chronic affections of old age have no such influence.

3. In the subjects vaccinated at birth and not revaccinated the predisposition for variola and vaccinia reaches its maximum in the ages of fifteen to twenty, and decreases gradually as age advances.

4. This fact is a stringent reason for the

revaccination of all persons at the stated ages of adolescence.

5. Bovine lymph is, by all means, preferable to human lymph.

6. In absence of an epidemic of variola, the months of March and April (Easter holidays) are most suitable for revaccination of school-children.

PAPAÏN.

The Carica papaya (papaïn-tree) has a wide tropical distribution. Its fruit (*Birmingham Med. Review*, May, 1886) resembles a muskmelon in look and structure; it has a strong pungent flavor, and is much relished by children; it is collected in the green state, for, if allowed to ripen on the tree, it becomes bitter. On incising this fruit, a milky juice plentifully exudes, especially if the fruit be in the young green state. This juice may also be scantily obtained from the leaves and young branches.

Papaïn, or papayotin, is the name given indiscriminately to the milky juice, the dried juice (which resembles gum arabic in appearance), and to the ferment-containing powder obtained from this latter by extraction with alcohol. The following notes refer to this powder. Papaïn can be got in any quantity, and is easy of extraction. Its composition, according to Wurtz, is variable. Several analyses gave him this result: C = 46 to 53, N = 14 to 18, H = 6 to 7, S = 2 to 2½, and Ash = 4 to 10.

Wurtz and Bouchut found a butyric ferment in all their samples, but were able to preserve it then in glycerin. It dissolves in less than its own weight of water. A concentrated aqueous solution clouds slightly on boiling, but does not coagulate as does albumen; if left to itself for a few days a similar cloud appears, and the fluid is then seen to be full of vibrios and rods. If pure, it gives no precipitate with corrosive sublimate, basic acetate of lead, nor on boiling. This behavior distinguishes it from peptones and albumens. With nitric and hydrochloric acids a large precipitate occurs, which is readily soluble in excess; phosphoric and acetic acids do not precipitate it; picric acid does so, and the precipitate is not soluble in excess. The powder is white and amorphous, and its aqueous solution has a slightly bitter taste. The actual ferment has not been isolated.

Physiological Action.—This is due to the contained ferment, which digests not only muscular fibre but also connective tissue (Brunton).

Wurtz and Bouchut obtained the following results: 1. 1½ grs. in a neutral aqueous solution dissolved 132 out of 155 grs. of moist fibrin in ten hours at 40° C.; there was no swelling of the fibrin previous to its solution. 2. 1½ grs. in a slightly alkaline aqueous solution dissolved 155 grs. of moist fibrin in ten hours at 40° C., except a small residue of dyspeptone; but the filtrate gave a precipitate with acetic and nitric acids, and a cloud appeared on boiling; there was no swelling of the fibrin previous to its solution. 3. 2¼ grs. in a solution acidulated with .2 per cent. HCl made 150 grs. of moist fibrin fluid in fifteen minutes, and dissolved 123 grs. of it in two hours, leaving 27 grs. of finely-divided dyspeptone in suspension; but the filtrate gave a precipitate with nitric acid. Thus papaïn differs from pepsin in its action on proteids in "dissolving them, not only in the presence of a little acid, but even in neutral or alkaline solutions."

Brunton and Wyatt deny that papaïn has any digestive action in an acid solution. Martin found that with .05, .1, and .2 per cent. HCl no digestion took place, for though the solid residue showed slight loss of weight, the filtrates gave the reactions, not of peptones, but of soluble proteids. Saundby found its action enfeebled but not prevented in an acid solution. Lastly, Albrecht declares that hydrochloric acid hastens its action, and states that the officinal preparation in use in Paris hospitals is an acid one. As to its action in an alkaline medium, Saundby says this also causes enfeeblement, but Martin found that in a .25 per cent. solution of sodium carbonate its action was as powerful, if not more so, than in a neutral medium, but that when the alkalinity was raised to .5 or 1 per cent., a weakened action resulted. Rossbach states that its action was stronger at 15° to 20° C. than at 35° to 40° C., while Martin's experience points to the reverse of this.

If we want to complete the conversion of the fibrin into pure peptone, so that nitric acid shall produce no precipitate in the filtrate, the proportion of papaïn to moist fibrin must be as great as three per cent., and the digestion must take place for forty-eight hours at 50° C. The action of the ferment is in no way affected by the rapidly appearing bacteria, for Wurtz showed that when the production of these was prevented by carbolic acid, fibrin was digested as well as ever. Its action on albuminoids resembles that of trypsin more than pepsin. Its first action is one of erosion, and no swelling takes place, while

leucin, and probably tyrosin (Martin), are among the products of digestion. It produces an intermediate product, apparently a globulin; but this seems to resist the change into an alkali-albumen, for no precipitation occurs on neutralizing the alkaline filtrate, only on acidifying this. Milk is first coagulated by it and then precipitated, casein digested afterwards. Its action is more powerful than pepsin and weaker than that of trypsin. Injection into the veins of a rabbit of a small quantity stopped respiration in fifty minutes (Dowdeswell).

Therapeutic Action.—The dose of the powder is 5 to 10 grains. It appears to be useful in dyspepsia and gastric catarrh (Brunton), especially one would think in those cases where the mucous membrane is thickly coated. In solution it rapidly dissolves the false membrane of croup, hence in diphtheria the pharynx should be painted with it every five minutes. It has also been used to remove warts, the thickening caused by chronic eczema, and the hypertrophied condition of the palms of the hands. It should be similarly useful in old psoriasis. Some years ago, Mr. Malcolm Morris successfully used it at St. Mary's to remove tubercles of irritation from the hands of the mortuary porter. It painlessly dissolved them away, and its occasional application kept his hands smooth so long as he avoided dead matter. Mr. Cox says it is the remedy *par excellence* in the later stages of "capped elbow" in the horse, when pus or serum has been poured out; that its injection is then much more potent than that of tincture of iodine. Mr. Cox, too, found it a valuable injection into old sinuses. He believes it destroys ("digests") their walls, setting up healthy granulation in their place, which rapidly leads to the complete obliteration of the sinus. This is in the horse, but there seems no reason why it should not be similarly useful in the human subject in cases of chronic bursitis, chronic synovitis, old recurrent hydrocele, etc. It might prove effectual, too, in all those cases where a pyogenic membrane has been produced,—*e.g.*, in a discharging psoas or other chronic abscess, as an injection into the fœtid cavities of bronchiectasis, to close up the remains of an old empyema, or to set up healthy action in a case of chronic pleural effusion after removal of the fluid. In the troublesome sinuous tracts which sometimes form the remains of mammary abscess it should prove a valuable injection. Mr. Cox has loosened the attachment of a fibrous tumor in the neck of a horse by passing a seton through it and keeping the thread soaked in papaïn juice. It has been recommended to destroy epithelioma. Its action has the great advantages of being painless and unirritating; it is no caustic, nor astringent, nor counter-irritant, but dissolves away the diseased tissues, so giving the underlying structures a chance of showing their healthiness.

ON MILK DIGESTION.

REICHMANN (*Archiv für Klinische Medicin*, vol. ix. No. 6) has made some valuable researches on the digestion of milk, which we publish here in condensed form. The milk drank by a healthy young man 20 years of age was subjected to an examination in the various stages of its digestion, and tested for acids, peptones, and parapeptones. Reichmann came to the following conclusions:

1. Three hundred c.c. of raw milk leave the stomach four hours after its ingestion.

2. The actual process of its digestion lasts but three hours.

3. The coagulation of milk takes place five minutes after its ingestion.

4. This coagulation is not caused by an increase in the quantity of acidity, but by the influence of another agent, probably Hammersten's ferment.

5. The maximum of acidity, viz., 0.34 per cent., occurred in all experiments but twice, once after the lapse of forty-five minutes, and the second time after one hour and fifteen minutes.

6. The contents of the stomach attain the maximum of its middle acidity, viz., 0.32 per cent., in one hour and fifteen minutes.

7. The acidity of the contents of the stomach depends at first solely upon lactic acid, later upon lactic acid and muriatic acid together.

8. Muriatic acid presents itself in larger quantities after the lapse of forty-five minutes.

9. The acidity of the gastric contents increases gradually during the first hour and fifteen minutes, and then gradually decreases until the milk has wholly left the stomach.

10. The maximum quantity of peptone occurs at the period between thirty minutes and two hours after the ingestion of milk. Before and after this period peptone occurs only in traces. Parapeptone shows in the beginning of the process of digestion the opposite behavior.

Experiments made on the same individual

with boiled milk led Reichmann to the following conclusions:

1. After the ingestion of 300 c.c. of boiled milk the sour contents leave the stomach in three hours.

2. The actual duration of this digestion lasts two hours and thirty minutes.

3. As to the nature of the acids in the gastric contents, the degree of acidity and its variations, no appreciable differences could be ascertained between the behavior of raw and of boiled milk.

4. In the digestion of boiled milk a more energetic peptonization occurs sooner than in the digestion of raw milk.

5. The caseine clots are much smaller in boiled than in raw milk.

6. The duration of digestion is shorter and the disappearance of the sour contents from the stomach occurs sooner in boiled than in raw milk.

7. After the ingestion of 100 c.c. of boiled milk the sour contents leave the stomach in two hours.

8. The duration of its actual digestion is only forty-five minutes.

9. After the ingestion of 25 c.c. of boiled milk the sour contents leave the stomach in two hours.

10. The duration of digestion of 25 c.c. of boiled milk is only forty-five minutes.

11. After the ingestion of smaller quantities of milk, muriatic acid can be found much sooner in the stomach with the aid of ordinary reactions.

Finally, Reichmann experimented also with alkalized milk in order to study the action of alkalies on the digestion of milk. All results obtained on the young man experimented upon were later confirmed by researches on nine other healthy persons.

THE ACTION OF BICHROMATE OF POTASSIUM.

Dr. Alfred Drysdale publishes in the *Med. Press*, April 21 and 28, 1886, an elaborate paper on the sphere of action of bichromate of potassium. When given to animals, 10 grains injected into the jugular vein is capable of producing rapid death in a dog, death being preceded by spasms and retching, followed by motor paralysis. At first the blood-pressure rises, but in a minute or two begins to fall, and continues to do so until death, the slowing of the pulse evidently being due to stimulation of the inhibitory fibres of the vagus. Post-mortem examination shows congestion throughout the large and small intestine, with the membrane reddened or perhaps inflamed. When the drug is given internally in poisonous doses it acts as a violent irritant, produces incessant vomiting and purging of mucus and blood, quick pulse, salivation, rapid emaciation, great weakness, and death within a period of twelve hours to three weeks, sometimes preceded by convulsions. On post-mortem examination, ulcers are found on the mouth and tongue; the mucous membrane of the entire alimentary canal is more or less destroyed, with extensive superficial ulcerations, especially in the stomach. The kidneys are always severely congested. In workmen engaged in the manufactory of this salt very serious symptoms may also be produced. In many of the workers the septum of the nose will have been destroyed by ulceration. In fact, this perforation and destruction of the septum is as characteristic of chrome-workers' disease as is necrosis of the jaw of phosphorus-match makers. The eyes are frequently inflamed, and the alimentary canal disturbed in its functions, while the skin is the seat of a papular eruption, which becomes pustular, and which leaves small dry ulcers, healing with a depressed cicatrix. Used as a remedy, bichromate of potassium may be reasonably hoped to modify pathological processes in tissues which are specifically acted on by the drug, such as the respiratory passages and alimentary canal, the liver, kidneys, skin, and bones. It therefore has been used, and with a certain amount of success, in scrofulous eczema, farcy, and digestive disorders, marasmus, and syphilis. Polypi of the nose, after repeated removal with the forceps, will often yield to the topical application of a snuff composed of 9 parts of sugar of milk to 1 of powdered bichromate of potassium. It also promises success in the treatment of hay asthma, and as a gargle, 2 grains to the ounce of water, with ½ ounce of glycerin, in acute ulcerated sore throat, as well as in cases of indolent enlargement of the tonsils. When given internally, as in the treatment of certain forms of dyspepsia and chronic intestinal catarrh and in syphilis, the dose should not be more than a ¼ grain daily, though sometimes ⅛ grain will be sufficient to produce violent emesis.

THE RELATIONS BETWEEN CARDIAC RHYTHM AND BLOOD-PRESSURE.

To ascertain the precise relations existing between the rhythm of the ventricular con-

tractions and the blood-pressure, PROF. BOTKIN, of St. Petersburg, experimented on the frog's ventricle and communicated the obtained results to the *Centralbl. f. Med. Wiss.* (No. 4, 1886). Omitting the purely technical portions of Botkin's communication, we condense his principal conclusions as follows:

1. Twenty-five, forty-five, or sixty minutes pass before the apex—cut out and nourished after the Leipsic method by defibrinated rabbit's blood and two parts of a 0.7 per cent. solution of chloride of sodium—attains a constant working power. If the latter has once been reached, it continues for an hour or more.

2. The variations in the quantity of blood expelled at each ventricular contraction are approximately proportional to the variations in the cardiac rhythm.

3. The power of the cardiac muscle decreases with the acceleration of the rhythm, and increases with the slowing of the latter.

4. An inverse relation appears to exist between the variations in the rhythm of the contractions and the variations in the power of the heart-muscle.

EFFECT OF BITTERS ON DIGESTION.

DR. CHELTSOFF, chief of Professor Botkin's clinic, thinks that extracts of the so-called "pure bitters," which are usually prescribed with the view of stimulating the secretion of gastric juice and of aiding digestion, so far from having any beneficial effect of that kind, are absolutely injurious, inasmuch as they retard the digestive functions. He has made a series of experiments with extracts of aurantium, gentian, trifolium, absinthium, calumba, cascarilla, and quassia on (1) gastric digestion and the secretion of gastric juice; (2) pancreatic digestion and the secretion of pancreatic juice; (3) the secretion of bile; (4) fermentation; and (5) nitrogenous metamorphosis. The conclusions at which he arrived were that bitter extracts, even in small doses, interfere with artificial gastric digestion, and also with the gastric digestion of animals, but not to so great an extent. Large doses of bitter extracts diminish the secretion of gastric juice, though small doses effect a slight and transitory increase of it, the digestive power of the fluid being, however, in all cases diminished. Bitter extracts have no effect on the secretion of pancreatic fluid, but they nevertheless retard hypogastric digestion. The action of bitter extracts on the secretion of bile is various; extract of absinthium, extract of trifolium, and large doses of extract of cetrarin slightly increase it, usually at least, but not invariably; while extract of quassia, extract of calumba, and small doses of extract of cetrarin have no effect at all. Bitter extracts have no antifermentative effect, and do not hinder suppuration. Lastly, assimilation of nitrogenous substances is diminished by the use of these extracts.—*Lancet*, May 15, 1886.

TESTING THE DISINFECTING POWER OF COCAINE, CORROSIVE SUBLIMATE, AND CHLORINE-WATER.

In the *Archiv für Augenheilkunde* (vol. xv. p. 295) we find a *résumé* of SCHMIDT-RIMPLER'S researches on the comparative disinfectant value of cocaine, corrosive sublimate, and chlorine-water. The experimenter brought the mentioned drugs in contact with the secretions of the lachrymal sac, and then inoculated them into the cornea of forty-eight rabbits.

Using a four per cent. solution of muriate and salicylate of cocaine, he did not note any reduction of the infectious properties of the secretion if the latter had remained for one to three minutes in the solutions. Only after a prolonged contact with the solutions the secretion appeared to have lost some of its infectious nature. This result, however, does not justify the conclusion that cocaine is a disinfectant, properly speaking.

As to the sublimate solution (1 to 5000), the observer found that a short contact of the secretion with the solution did not suffice to remove its capacity of infection; in five to ten minutes, however, this effect could be obtained with certainty.

The chlorine-water showed the promptest effects, and is superior even to the sublimate. Hence, for ophthalmological purposes at least, this drug is to be regarded as the best disinfectant.

SOME READILY AVAILABLE TESTS FOR THE IMPURITIES IN WATER.

The most valuable tests for determining the impurities in drinking-water require, as a rule, an amount of apparatus and practice that places them beyond the reach of the practising physician. The estimation of organic carbon and nitrogen, of free and albuminoid ammonia of nitrogen, as nitrates and nitrites, are illustrations of this fact. The presence of nitrites and chlorides is frequently significant of the impurity of water. The nitrogen of organic bodies is converted

in the process of decay into ammonia, and exposed to oxidizing agencies is resolved into nitrous and nitric acids, which combine with bases to form nitrites and nitrates. The former are of especial interest, as a water pure enough for drinking purposes, and not containing more than 1 to 1000 part per 100,000 of nitrous acid, and the presence of three or four times this quantity is sufficient to condemn a water. MR. C. C. HOWARD publishes in the *Sanitarian*, May, 1886, a ready method of determining the presence of nitrous acid in water. The agents which he has found to act most satisfactorily are sulphuric acid and naphthylamine hydrochloride. If water containing not more than 1000 part per 100,000 of nitrous acid be treated with a drop of hydrochloric acid and a drop each of solutions of these reagents, after standing ten or fifteen minutes only the faintest tint of pink will be perceived. If a marked pink be produced, the quantity of nitrites is sufficient to indicate serious contamination. In sewage, and in the water from a few wells, the color was of a deep carmine, and the quantity present 20 to 66 times the limit stated.

Another constituent of importance is chlorine combined with sodium, as sodium chloride or common salt. Since this is found in the fluids of the body, and urine contains 500 parts per 100,000 of chlorine, mixtures of animal excreta with water will increase the quantity of chlorine found therein. Two or three wells have been found in Columbus, Ohio, containing less than 2 parts per 100,000 of chlorine, but the majority contain from 5 to 20 parts per 100,000, while one well in an adjoining town contained more than 50 parts.

The reagents for chlorides are nitric acid and silver nitrate, which produce in water containing chlorides a white precipitate of silver chloride. In water containing 1 or 2 parts of chlorine per 100,000, the precipitate is so slight that it appears as an opalescence, while with 10 or 20 parts a precipitate is produced. The appearance of a marked precipitate indicates the presence of a sufficient quantity of chlorides to justify the rejection of the water.

ON THE INFLUENCE OF FOOD ON ANIMAL TEMPERATURE.

PROF. HERING, in Kiew, has studied in detail the question of the influence of ingestion of food on the variations of animal temperature, and has come to some very interesting results, which we find published in the *Centralblatt für Med. Wiss.* (No. 4, 1886). The observations were made on a man in whom the operation of gastrotomy had been performed on account of œsophageal stenosis.

Hering found a fall in the animal temperature after each meal, and observed that the extent of this fall depended upon the difference in temperature between the ingested food and the stomach.

Ingestion of food and muscular action play, in Hering's estimation, a more important *rôle* regarding the daily variations of temperature than Liebermeister and other German observers have assumed. Our experimenter found that after the ingestion of hot food the pulse became quicker and soft, respiration more hurried and superficial, and that the temperature fell in the rectum, but rose in the axilla.

On the contrary, after the ingestion of cold food the pulse became slower and hard, respiration slackened, and the temperature fell both in the rectum and the axilla. Vintchgau regards these phenomena as the results of the peptonization of ingested albuminates and the subsequently-produced latent heat, while our observer attributes them to a nervous influence. In his estimation the ingestion of cold food produces a constriction of the blood-vessels as the result of vaso-motoric irritation; in this manner an increase of the arterial pressure is caused, which directs the blood-current from the intestinal tract toward the periphery. Thus the hard pulse and the sinking of the temperature in the stomach find a rational explanation.

The ingestion of cold food, on the contrary, leads to a general paralysis of the vaso-motor nerves, and an afflux of blood to the intestinal tract, while the heart increases its working power in order to retain its influence over the circulation at the usual height.

Alongside of these factors certain other influences require to be considered in the variations of temperature; among these are the periodical ingestion of food, various somatic and psychical actions of the organism, and, finally, time itself, for during the night the temperature is invariably lower than during the day.

SANTONATE OF ATROPINE.

Santonate of atropine, a compound of atropine and santonic acid, is recommended by BOMBELLON (*Pharm. Journ. and Trans.*, May 1, 1886) as presenting advantages over any other salt of atropine for ophthalmic purposes, a solution of it being perfectly non-irritating and not liable to fungoid growth. The action

is said to be mild and to resemble that of homatropine; the mydriatic action equals that of atropine sulphate; 1 drop of its solution of 1 centigramme in 20 grammes of water is sufficient to dilate the pupils, the dilatation disappearing in from twelve to twenty-four hours. Santonate of atropine is described as a white, amorphous, non-hygroscopic powder. A dilute solution may be prepared with cold water; a stronger solution requires the aid of a little heat. The solution should be kept in yellow glass bottles to avoid the formation of photosantonic acid under the influence of light, though it is not yet known whether this change would be prejudicial.

THE TREATMENT OF HYSTERIA AND NEURASTHENIA.

Therapeutic suggestions coming from America are so invariably received with indifference, or even obstinate opposition, by our German colleagues, that it is gratifying to find in the German medical press the praise of a certain system of treatment as established by an American therapeutist.

In the *Berliner Klinische Wochenschrift* of April 19, 1886, DR. BURKART, of Bonn, publishes the results of twenty-one trials with Weir Mitchell's method of treating hysteria and neurasthenia. In a previous paper, which appeared in Volkmann's *Sammlung Klinische Vorträge* (No. 245), this author had first directed the attention of the German profession to the Mitchell treatment of various forms of nervous ataxia and mal-nutrition.

The so-called Weir-Mitchell cure consists, it will be recalled, principally in massage (and faradization) of the muscular system of the body, an enormous supply of readily digestible food, and strict isolation, with rest in bed.

Of the twenty-one cases treated by Burkart (four male and seventeen female patients), nine were little or not at all benefited, while twelve could be discharged as completely cured. Considering that all of these patients had for years suffered from the gravest forms of hysteria and neurasthenia, and that all known remedial resources had previously been tried in vain, the obtained percentage of cures—fifty-seven per cent.—must be regarded as very acceptable.

Burkart gives certain suggestions of practical utility in the Weir-Mitchell cure which will interest those intending to try this treatment at a given opportunity.

In every instance that the Mitchell cure is to be exhibited, Burkart deems it necessary to carefully consider whether the patient is able to bear with impunity the single requisites of the treatment, as stated above. It is certain, at least, that numerous patients of the neurasthenic type would probably be injured by a rigid execution of this treatment.

Success can, in Burkart's opinion, be looked for only in such patients as are endowed with a considerable energy of will and have firmly determined to assist the physician with their greatest efforts, especially in the direction of nutrition. The patients are, besides, to understand clearly what is intended and what is wanted of them.

In our author's experience, patients in whom a pronounced irritability of the cerebrum existed remained wholly indifferent to the Mitchell treatment. Especially in the case of female patients the required strict isolation will—as Leyden, in a discussion of Mitchell's treatment, had previously pointed out—very often be an injudicious attempt on account of the nervous excitation resulting from it. If the cerebral irritability coexists with or depends upon an existing anæmia, the outlook is more hopeful. In visceral neuralgia Burkart's success was likewise limited: the local pains usually remained, though less pronounced, after all other morbid symptoms had disappeared.

Burkart tried the Mitchell cure also in four instances of sexual neurasthenia,—resulting from a preceding urethral affection or venereal excesses,—but, as could be presumed, with unsatisfactory results; in one instance only was an improvement observed.

The Mitchell cure, exhibited under the precaution of strict individualization, deserves, in Burkart's opinion, the reputation it enjoys in America, and is well worthy of further trials.

LIGATURE OF THE LARGER ARTERIES IN THEIR CONTINUITY.

At a recent meeting of the Royal Medical and Chirurgical Society (*Lancet*, May 15, 1886), MR. BALLANCE and MR. W. EDMUNDS communicated the results of an experimental inquiry on the ligature of the larger arteries in their continuity. The experiments were made by the permission of Prof. Birch-Hirschfeld at Leipsic. The object of the paper was to show that in the ligature of a large artery in its continuity (1) it was neither necessary nor advisable to tie the ligature so tightly as to rupture the coats of the vessel; (2) the lumen of the vessel must be completely or almost completely obliterated; (3) the round ligature,

of small size and possessed of certain qualities, was the best. The authors commenced with a short historical sketch. They then stated the reasons which led them to perform the experiments which formed the basis of the paper. Nineteen carotid arteries of sheep and horses were ligatured, some with catgut and others with kangaroo tendon, and the result in each case was given. The animals were killed and the vessels removed from nine hours to seventy-three days after ligature. The general results of the operations were summarized, and the best material for ligature and the function of the clot discussed. Certain objections which might be raised were considered, and, in conclusion, the authors recommended for the operation of ligation in continuity (1) aseptic precautions; (2) the small round absorbable ligature; (3) the maintenance of the integrity of the arterial wall. The paper was illustrated by macroscopic and microscopic preparations, and by drawings. It was seen in the preparations that the inner coats, even where included in the ligature, were alive and apparently of unimpaired vitality; that, although the tunics were unruptured, a plastic effusion had taken place, which in the arteries removed latest was developing into connective tissue, permanently occluding the vessel. With respect to the ligatures, leucocytes were thrown out round them, and gradually caused their absorption. In the case of kangaroo tendon, the absorption took place only from the surface; but with catgut the leucocytes insinuated themselves along the crevices formed by the twisting of the gut, and the ligature became absorbed more rapidly. The durability of catgut seemed to vary in different specimens; but it was thought that in wounds that healed by first intention good catgut held for about a month, and kangaroo tendon for two. In the three carotids of horses in which alone suppuration had occurred, it was proved that catgut was rapidly becoming absorbed in fourteen days, and had completely disappeared in fifty-one days, and that kangaroo tendon was but little altered in ten days.

Mr. Barwell agreed largely with the conclusions of the authors, especially as to the undesirability of rupturing the internal coats. Whether it was preferable to use the round rather than the flat ligature for the purpose was a matter on which he joined issue with them. A small round ligature would more readily tear the inner coat. We ought not to lose sight of the different states in which the vessels are: some were tightly stretched, and others in a lax state. He had formed his own conclusions as to the results of experiments on dead subjects and living animals. He considered that a flat ligature could lie smoothly, and the knot was not clumsy, though of large size, which he regarded as an advantage, for a small knot of catgut was more liable to set up ulceration and perforation, as in a case of innominate aneurism in which Mr. Bennett May ligatured the carotid artery. A large knot obviated that difficulty of ulceration and perforation altogether. Again, a small knot was not sufficiently broad to resist the impulse of the blood-current. A good-sized clot in the vessel was also advantageous as a check to the force of the blood-current. There was further a general unreliability in carbolized catgut, which at least introduced an element of undesirable uncertainty, for it might be absorbed in a very short time.

Mr. Scovell Savory considered that the authors had collected an interesting series of facts, but he could hardly follow them in their conclusions that it was neither necessary nor advisable to rupture the inner coats. He failed to see how their experiments proved that it was not advisable; they had made no "check" experiments; their paper abounded in *ex-parte* statements; the experiments had all been done in one way. If check experiments had been made they might have had facts which would justify their conclusions. Experimental investigations tended to show that the arterial system of animals differed very much from that of man; it was much more difficult to excite septic processes in animals, as Dr. Jones long ago proved. It was owing to the greater number of mishaps where animal ligatures were employed that made many surgeons hesitate still to employ them in preference to silk ligatures.

Mr. T. Holmes also congratulated the authors on their industry and on the interest of the facts collated in the paper; but he hesitated to accept their main conclusions. He would not like to trust experiments on animals in guiding him as to what to do in the human subject. In one of Mr. Barwell's cases of ligature without rupture of the internal coats the vessel became pervious not long after the operation. He had been content with the practice at St. George's of division of the internal coats. In one instance Mr. Pick ligatured the femoral for popliteal aneurism without rupturing the internal tunics, and pulsation recurred, though he felt bound

to add that the vessel was afterwards tied lower down as tightly as possible, and then pulsation recurred. In truth, a long period of experience on human subjects would be necessary before we could accept the conclusions of the authors. In division of the internal tunics a greater amount of lymph was thrown out, which in itself would appear to be an advantage, and he asked whether there was a corresponding disadvantage in this excess of lymph. He could not but think that experiments on animals were not entirely satisfactory. It was at one time thought that a powerful barrier to the restoration of the circulation would be found in the employment of silver ligatures, which would produce no irritation. But in one instance in the practice of Brodhurst secondary hemorrhage occurred. In a paper read before the Pathological Society, Mr. Pick also showed how the artery could be occluded without dividing the internal coats by ligatures, which at the end of three weeks had not caused ulceration.

MR. C. DENT had been engaged in a similar inquiry on the femoral arteries of sheep, using kangaroo tendon prepared in chromic acid, the internal tunics being completely ruptured. He considered that rupture of the tunics made the operation certain and was a better surgical practice. In one case pus formed around the ligature, which had not been rendered sufficiently septic. In none of the cases did secondary hemorrhage occur.

MR. BARWELL explained that he used the ox aorta ligature in the case referred to by Mr. Holmes, and the failure was purely an error of manipulation, and had nothing to do with the nature of the material employed.

MR. W. EDMUNDS, in reply, pointed out that even in tying a flat ligature the knot was liable to present an angular projection, and so Mr. Barwell's argument that with a flat ligature the adhesion between the coats was favored need not always hold good.

MR. BALLANCE, in reply, admitted that more skill was necessary to apply a round ligature so as not to rupture the internal coats, but a very little practice in the post-mortem room would suffice to show how to occlude the lumen of the vessel, so that no water would be syringed through. On examination it would be found that no damage to the tunics had been done. A long piece of artery was occluded even with a small ligature, as the specimens on the table showed. Dr. Jones's classical work was referred to by Mr. Savory, but at that time it was thought that the question of rupture of the coats had been threshed out. His object and that of Mr. Edmunds was to present a series of observations showing what happened when the coats were not ruptured.

Perhaps the chief interest of this paper lies in the careful and extensive pathological investigation, but it has an evident direct bearing on surgical practice which could not fail to excite the interest and close attention of the surgeons present. The chief contention of the authors was that it is "neither necessary nor advisable" to ligature the vessel so tightly as to rupture the coats. It is necessary, however, to obliterate as nearly as possible the lumen of the artery. The object aimed at should be the excitement of just sufficient damage to cause a chronic or subacute arteritis, which leads to permanent occlusion of the vessel. The internal coats should not be ruptured for fear of opening up channels for septic absorption, and with a view to preventing such a degree of damage as would be followed by ulceration and subsequent danger from secondary hemorrhage. If it were easily possible to excite just sufficient inflammation to secure the object in view by the means advocated, considerable progress would be made in arterial surgery. Mr. Savory, Mr. Holmes, and others appeared to doubt the possibility of obtaining the desired end by the method recommended when applied to the human subject. An examination of the specimens, both macroscopically and microscopically, is sufficient to convince the most sceptical that the means employed in sheep and horses were adequate to the end in view. But here comes the rub. Can we argue from animal to man —from the arteries of sheep and horses to those of human beings? Theoretically we do not perceive why this should be impossible; but even the authors of the paper would probably admit that this is a question which must be submitted to the test of a prolonged experience in the operating-theatre and wards of hospitals for human beings. One point on which the authors commented was the undesirability of attempting to rupture the internal coats of diseased arteries when these have to be deligated in their continuity. Every surgeon must feel the immense importance of the question; for assuredly a benefit of no mean order would be conferred on individuals with diseased arteries if a ligature could be so applied as to be sufficient to incite an inflammatory process adequate to effect the occlusion of the lumen of a diseased artery, and without being so firmly tied as to rupture its internal coats.

OBSERVATIONS ON THE NEW ANTIPYRETICS.

In spite of the great number of clinical observations on the comparative value of the antipyretics recently introduced into the practice of medicine, additional reliable data concerning their employment are certain to receive attention.

Dr. Pavay, chief of the Presburg Hospital, publishes in the *Wiener Medizinische Wochenschrift*, 1886, No. 8, an essay on the subject of antipyretics, from which we abstract some of the more interesting topics.

Antipyrin is at present acknowledged to surpass, in certain affections at least, quinine and salicylic acid. It fully meets the requirements of a practical antipyretic; for there is no acute febrile affection of which antipyrin is not able to reduce the temperature with certainty. The extent and duration of the reduction of temperature caused by antipyrin is directly proportional to the quantity of the drug employed. Secondary symptoms cannot be said to be wholly absent after the use of antipyrin, but they are decidedly milder than in the case of quinine and salicylic acid.

There is a considerable variance of opinion as to the proper dose of the drug. Ziemssen, for example, in a case of pneumonia or typhoid fever, orders daily doses of 3 dr., while other clinicians prescribe only 1 to 2 dr. *pro die*. Pavay regards the latter dose as quite sufficient, and denounces the fashion of German physicians to exhibit the antipyretic remedies only in very large doses. Pavay has employed antipyrin with satisfactory results in typhoid fever, erysipelas, puerperal fever, phthisis, pneumonia, acute articular rheumatism, variola; in fact, in almost every febrile affection. The quickness and certainty in its action are especial recommendations for its employment.

The temperature lowered by antipyrin rises in most instances slowly, without producing any rigors. The sweat caused by antipyrin is always less excessive than that produced by salicylic acid or thallin; in phthisical subjects it produces the greatest sweats. The fact of a measle-like eruption following after the use of antipyrin is well known.* The drug may also be given hypodermically or as an enema. If it should occasion diarrhœa when given *per os*, extract of opium may be conveniently combined with it.

* At a visit to the General Hospital of Hamburg, Dr. Wolf presented a phthisical patient, in whom antipyrin had produced a genuine scarlet-fever rash.

Pavay made also comparative experiments with quinine, salicylate of sodium, and antipyrin, by exhibiting all three drugs to the same patient (phthisis). He found that the effects were identical if of quinine 15 to 22 grains, of antipyrin 37 grains, and of salicylate of sodium 45 grains, were used. In phthisical subjects, however, quinine and salicylate of sodium are both contraindicated, the former on account of the "chininism" (cinchonization), the latter on account of the excessive sweat which it produces even when combined with atropine.

Antipyrin is in one to two hours after its ingestion recoverable from the urine; in presence of a solution of chloride of iron the urine assumes a red-brown color.

In conclusion, Pavay mentions thallin, resorcin, hydrochinon, chinolin, kaïrin, benzoate of sodium, veratrine, and digitalis as antipyretic remedies, but regards them all as little prompt and reliable. Besides, nearly all cause such untoward after-effects that for this reason alone their employment is not advisable. Thus, chinolin causes vomiting, resorcin and hydrochinon great nervous excitation, and kaïrin a very unpleasant sensation in the face and nose, and besides that vomiting, cyanosis, and finally collapse.

THE PRESERVATION OF SOLUTIONS FOR HYPODERMIC USE.

An ingenious method of preparing and preserving solutions for hypodermic injection, according to the *Pharm. Journ. and Trans.*, May 1, 1886, has been devised by M. Limousin. It consists in first sterilizing small glass globules, of rather more than a cubic centimetre capacity, and having a long drawn out neck, by heating them in a stove to about 200° C. These are filled with the solution, either by introducing the end of the neck of the heated globule into the cold liquid, or by injecting the hot liquid by means of a finely-pointed syringe. The end of the neck is then sealed in a flame. The solutions are prepared hot, with water that has been boiled and previously filtered through a Chamberland filter. M. Limousin rarely uses distilled water, as he considers the salts present in ordinary water retard the invasion of fungi. Under these conditions he states that solutions of ergot and hydrochlorate of morphine have remained intact for upwards of a year. When required for use, the fine neck of the globule is broken off, and a sufficiency of the liquid taken up in a syringe direct.

ON AMBLYOPIA PRODUCED BY INTOXICATIONS.

DR. BERGMEISTER held, in the Wissenschaftliche Versammlungen at Vienna (*vide Wiener Med. Woch.*, No. 8, 1886), a discourse on the interferences of vision produced by the action of poisons. There is an acute intoxication-amblyopia as resulting from the ingestion of certain medicines, such as quinine, salicylate of sodium, and santonine, though the affection is more frequent in its chronic form. Among the causes of the chronic intoxication-amblyopia are: 1, visual interferences resulting from handling toxic agents, such as lead and sulphide of carbon; 2, the results of abuse of tobacco, alcohol, opium, morphine, and hashish; 3, the effects of snake-bites (blindness).

Other intoxications cause simply interferences of accommodation, without preventing an amaurosis; to this category belong intoxications produced by anilin, ether, aconite, Calabar bean, chloral, atropine, duboisine, and the poison generated in the sausage. The prognosis of both the alcohol and the tobacco amblyopia is not unfavorable.

HOW TO DETECT ACETONE IN URINE.

It is stated by MONS. P. CHAUTARD (*Lancet*, May 15, 1886) that the presence of acetone in urine or pathological liquids may be readily detected by adding a drop of an aqueous solution of magenta decolorized by sulphurous acid to the suspected liquid, when, if acetone is present, a violet color is produced, the intensity of which is proportional to the amount present. In dilute solutions the coloration does not appear until after four or five minutes; if the amount of acetone is very minute, the urine or other liquid may be distilled, the first portion that comes over being examined. In this way a very minute proportion of acetone may be detected.

ACTION OF CONIINUM HYDROBROMATUM.

SCHULZ and PEIPER report in the *Archiv für Experimentelle Pathol.*, vol. xx. p. 149, their experiments with hydrobromate of coniine. The principal question to decide was whether the drug, employed in a watery solution, was capable to suppress convulsions artificially produced,—for example, those caused by brucine. They found that the respiration in the animals treated with the coniine salt became again deep and easy, and that there was no noticeable muscular spasm. The convulsions subsequent to the brucine-ingestion could be both avoided when coniine was administered previously, and removed when given afterwards. In view of the anticonvulsive action of the hydrobromate of coniine, the observers regard the drug suitable for practical trials.

Reviews.

DISEASES OF THE DIGESTIVE ORGANS IN INFANCY AND CHILDHOOD, WITH CHAPTERS ON THE INVESTIGATION OF DISEASE, AND ON THE GENERAL MANAGEMENT OF CHILDREN. By Louis Starr, M.D., Clinical Professor of Diseases of Children in Hospital of University of Pennsylvania; Physician to Children's Hospital, etc. With colored plate and other illustrations. Philadelphia: P. Blakiston, Son & Co., 1886.

The scope of this book, as indicated by its title, might have served to restrict the author somewhat, but he has taken it in its widest significance. In his introduction he treats of the investigation of disease, and his directions are pertinent and often original. The section on "Inspecting the Child" is especially to be noted as containing very valuable matter; nothing seems to have been omitted, while the language is graphic, and contains here and there touches of that genius for description which marks the book throughout. In looking through the early pages we see (p. 29) "incessant unappeasable crying is due to one of two causes, earache or hunger," and would suggest in passing two more, thirst and a misplaced pin, and also that earache can be diagnosticated from hunger as well, in many cases, by traction or pressure on certain neighboring parts as by putting the child to the breast or bottle, as the author advises, since food seems a sort of infant solace for all imaginable aches and pains.

Under "Affections of the Mouth and Throat" the author includes catarrhal, aphthous, ulcerative, and gangrenous stomatitis. We feel sure that eventually ulcerative stomatitis will be traced to an origin in some disease affecting the cow and its milk, but at present the author agrees with most authorities in denying it a specific contagium, nor do we think that the causes he enumerates—decayed teeth, want of cleanliness in the mouth, and the too free administration of lead, phosphorus, and mercury—have anything to do with the causation of the disease as he describes it. It will be found, we think, on careful investigation, that in a large majority of

cases the child affected has been recently—*i.e.*, within two weeks—put upon a diet of cow's milk, or upon a different milk-supply, or if previously so fed, that the scalding of the milk has been omitted in that period. It will also be found that the disease follows milk from certain sources of supply, and can attack adults when they are extensive drinkers of such milk, while decayed teeth are only an occasional accompaniment of the disorder, and phosphorus causes its own well-known necrosis, and mercury mercurial stomatitis.

The author lays great stress upon the fœtor of breath, but it bears no comparison in quality or quantity to that of mercurial disease. In the chapter on thrush the author seems to have overlooked the value of hyposulphite of sodium internally administered, while as a wash he partially recognizes its value, but the reviewer has seen much apparent benefit from its internal administration in 3- to 5-drop doses of the saturated solution, which same solution is a necessity in local application. Anything weaker, as, for instance, the author's 10-grain solution, will generally fail and throw discredit upon the remedy.

Under "Dentition," in regard to eczema of the scalp and face, we find "there can be no question as to the propriety of healing eczema as quickly as possible." Now we think there is some question which concerns the remedies used; we would rather say, eczema should be cured as quickly as ordinary and safe measures would do it. The reviewer has often in times past chased eczema by local applications, generally mercurial, from face to scalp, to eye, to ear, to violent intestinal disturbance, and has been only too glad, after nearly losing his case, to find the dangerous symptoms disappear with the reappearance of the old facial trouble; so that we would say, if any internal medication, any alteration of diet, any assistance to the digestive process and general improvement of health be of service to the local condition, it is called for, but to heal the eruption "as quickly as possible" may involve measures detrimental to life itself.

In nervous disturbances at the time of teething the book advocates the use of the gum lancet, but urges it at an earlier period than many would consider necessary. In chronic hypertrophy of the tonsils the author recommends the use of the solid stick of nitrate of silver. This is so dubious a procedure that we are sorry to see it advocated. As a preliminary to excision it may be employed, for burned tonsils will never spontaneously disappear, and will inevitably need the knife. The tendency of the day is towards milder measures, and reserves the knife when these fail. By drying the tonsils carefully with absorbent cotton and painting systematically with iodine twice or thrice weekly, marked absorption will generally take place. Iodine internally will facilitate it, but better still the steady, persevering employment—either by gargling or by brush—of bromide of potassium and ergot. Under the use of this the blanched tonsils soon lose their redundant tissue, and if near puberty—if not already by injudicious management a mass of cicatricial tissue—the glands will diminish to their normal size.

The author, in "Affections of the Stomach and Intestines," gives us his views concerning infant feeding in the earlier months. Recognizing, as do all, that improper and unnatural food is the great provocative of infantile intestinal disorders, the aim of the numberless "infant foods" is to meet the difficulty. The author's favorite food seems to be composed of milk and cream, milk-sugar, and water, in varying proportions. This may answer perfectly with children who would thrive on cow's milk, but for the difficult cases, with feeble digestion, there is still too much casein,—not perhaps too much in theory,—but the casein of cow's milk and that of human milk behave differently under the same circumstances. The reviewer has been satisfied for many years with a formula of cream one part to water five parts, increased to four parts water as the child ages. Average cream contains enough milk—*i.e.*, casein—for the child to manage. With this formula there is no difficulty in raising delicate children in good condition to the age when farinaceous foods can be readily digested. The author's use of milk-sugar and Mellin's food, which latter can only practically serve the purpose of sweetening, seems unnecessary and burdensome. Milk-sugar is by no means always a pure article, or always accessible, and pure cane-sugar in small quantity has never been proved deleterious. While condemning farinaceous foods in the early months, the author, following an eminent authority, recommends barley-water as a diluent—but barley is somewhat farinaceous—and weak veal broth, a favorite with the British writers on this subject, but liable to all the objections to which veal is open, and by no means easier of digestion than the broth of grown animals.

Whether it be worth while to elaborate into a separate existence the condition met with in

gastro-intestinal catarrh, which the author describes as "mucous disease," is a question. For its relief we have given us a special diet table, from which farinaceous food is omitted as far as possible. The recommendation of 20 drops of tincture of myrrh in this condition, given after meals, might in many cases be altered to before meals. In connection with this symptom we find a description of stomach-cough which would make Mrs. Gamp's mouth water. This cough the author describes as a common accompaniment of "mucous disease," and remarks upon its perplexing similarity to whooping-cough, and upon the fact that ordinary remedial measures are useless. We notice in the formulæ given for its relief the well-known prescription for whooping-cough of the late Dr. John Forsyth Meigs, consisting of alum, belladonna, and syrup of ginger. Can it be possible that those habitually using it for pertussis with so much success have been by an error of diagnosis prescribing for and relieving "stomach-cough" all the while?

For chronic entero-colitis we have more diet tables, and good use is made of raw oysters and junket as articles of food. From the number of formulæ appended to the chapter the reader should be at no loss in prescription-writing, especially as the author has taken great pains to discriminate as to the conditions requiring the special use of each one. Perhaps he has erred in the too minute subdivision of his subject, it being wellnigh impossible to rigidly class many cases of intestinal disease, and a slight glance at his pages will show that at least three separately-described conditions demand much the same diet and remedies. Cholera infantum has received but slight attention, and is regarded by the author as very formidable. "In the fortunate cases in which this plan is successful," he says, as though somewhat hopeless about the result; yet we think many will agree that the class of cases to which the author restricts the name, cases previously in health, uncomplicated, make better and more frequent recoveries than the cases of acute entero-colitis, which so readily become chronic. There is, too, no recognition of the value of carbolic acid and creasote in the management of the vomiting of cholera infantum.

Acute dysentery, which is at last admitted as a possibility in infants, receives much attention, but there is no mention of the benefits arising from medicine administered by suppository, or of the value of large demulcent enemata, or the administration of salines or ipecac. The difficult question of "Habitual Constipation" has been carefully treated. Cascara, perhaps the best remedy for the condition, is mentioned nearly at the end of the text. And senna has not received enough consideration, since, in the truly habitual constitutional cases of constipation, senna alone, or in any of its combinations, of compound liquorice-powder, confections and laxatives, will immediately solve the difficulty.

The chapters on simple atrophy, typhlitis and perityphlitis, and intussusception are excellent, and worth a careful study. True congestion of the liver the author thinks a quite common disease of children from four years upward. There must be "enlargement of the organ, with pain and tenderness, jaundice, and clay-colored, offensive stools." Fatty infiltration, fatty degeneration, amyloid and syphilitic liver, are minutely described, and one case of abscess of the liver in an infant is given in detail. Acute tubercular peritonitis and ascites conclude Part II., and Part III. is devoted to the "General Management of Children." While the author believes in the value to the child of the mother's breast, in regard to wet-nursing his words have a singular sound, when, after enumerating the advantages and disadvantages of a wet-nurse, we read, "for these reasons it is preferable in the majority of instances to trust to careful bottle-feeding." And, again, "there can be no doubt . . . that, taking the average, infants properly brought up by hand are better developed and enjoy more perfect health than those completely breast-fed." Condensed milk is very properly condemned as a sole diet. The process of peptonizing milk is minutely described, and many formulæ for milk-food suited to different ages are given, as well as diet tables. Taken as a whole, this book shows a marked individuality, where individuality is difficult; it is thoroughly practical in its aim; its tone is good; it is not overburdened with technicalities or the labored language of the schools, but speaks the thought of the true practitioner, whose aim is rather to cure than teach. While here and there one may descant a little, the pages are few on which one can find anything doubtful, or search in vain for anything indispensable. E. W. W.

THE STUDENT'S MANUAL OF VENEREAL DISEASES. By Berkeley Hill, M.D., and Arthur Cooper, M.D. Fourth Edition.

This small volume is evidently in demand, having reached a fourth edition, and we hesi-

tate somewhat to give our opinion in the face of such success; but it is always a problem to us why this class of medical books are successful. They certainly cannot satisfy one who is desirous to study the diseases of which they treat, and to turn to them for information in order to treat the diseases which they discuss is generally useless. That the above work is not good we cannot for a moment think. It is, indeed, very good for what it claims to be, and as an outline of the larger and most excellent work upon the same subject by the same authors, it could not be better.

LOCAL ANÆSTHESIA IN GENERAL MEDICINE AND SURGERY, BEING A PRACTICAL APPLICATION OF THE AUTHOR'S RECENT DISCOVERIES. By J. Leonard Corning, M.D.
New York: D. Appleton & Co., 1886.

Dr. Corning, unlike many writers of the day, enjoys the advantage of a thorough knowledge of his subject. He will be remembered as the author of "Brain Rest" and "Brain Exhaustion," and as the discoverer of the "carotid compressor," a means of alleviating suffering and procuring sleep, singularly unappreciated by the world. In fact, the human race, depraved as it is, was not ready for the carotid compressor: it was born, like the photograph, before its time. Yet even now it may be pursuing in secret its insidious work. Acute but unprincipled minds may have silently recognized its value, and by this time it may have lulled to perpetual sleep many a political opponent and a domestic enemy, but certain it is that the instrument which promised so much, which made the miser count in secret his spare cash, and the mother-in-law tremble with unspoken fear, is seldom mentioned to-day. It is not on sale at the nearest drug-store, nor is it carried in the pocket of the enterprising physician. Something very like it is extensively employed, under a more forbidding name, in some parts of Europe, for purposes of capital punishment, but elsewhere it seems to have made but little headway.

Dr. Corning now claims to have made another discovery. In the present volume he gives us an account of cocaine from its discovery up to his own time, up to the occurrence of Dr. Corning, so to speak. This drug had been previously used locally by others in many operations, and a considerable number of facts had been already accumulated; but to make local anæsthesia complete and prolonged, so much of the drug was necessarily employed as to render the patient liable to subsequent danger from the impression upon the system at large. Dr. Corning tells us that his own discovery was by no means accidental; but, like the discoveries of Columbus, Watt, Prof. Bell, and other true discoverers, it was "the direct outgrowth of a chain of deductive reasoning." An "outgrowth of a chain" is something truly unusual. Even Columbus and the other worthies never found anything like that. This "outgrowth," or discovery, consists in a plan for confining or retaining the cocaine after its hypodermic injection within limited areas, and is done by mechanical means. In short, the mechanical genius which conceived and gave to a thankless world the carotid compressor, found but little difficulty in solving this problem.

For a limb the bandage of Esmarch is applied up to the desired point; then, after injecting the cocaine, and waiting a few moments for a little diffusion to take place, the bandage is continued upward, leaving the injected area uncovered, and the subsequent procedure is the usual one with the Esmarch bandage. This plan Dr. Corning has extended and modified to meet almost all imaginable conditions, and he describes and depicts his methods and his instruments and bandages *in situ*. We are also introduced to an anæsthetic trochar, tourniquet, and clamp, to his own hypodermic syringe, and very proud we are to make its acquaintance. He shows us his method of mapping out the veins, and his anæsthetic bistoury, an æsthesiometric probe. For other localities than limbs he uses incarcerating rings and hæmostatic clamps. All these are necessary if the reader would practise "Corningism" successfully; and so valuable a method is it that the hip-joint can be excised under its influence, and bone surgery generally is possible. In fractures and dislocations Dr. Corning also resorts to it.

The author appends some experimental observations of his own on the "Influence of Cocaine upon the Healing of Wounds," "Spinal Anæsthesia and Coca Medication of the Cord," and an appendix, detailing the successful employment of Corningism by others.

This discovery will doubtless prove of great value, and by no means deserves to be classed with the "carotid compressor." Man now, thanks in part at least to Dr. Corning, seems to be able to render himself superior to pain, while preserving his intellectual facul-

ties unimpaired, even momentarily, and what wonderful uses do we foresee for this process in the future! By its means the ingenious physician may render the wife-beater proof against even the lash of the Delaware sheriff, and, should religious persecution ever again arise, may enable the martyr to meet the flames even hilariously, if only thoroughly Corningized, or, as the word will probably be abbreviated, Corned. The tender-hearted anarchist will anæsthetize his capitalist, hunger and cold will be banished by chewing coca-leaves, and coca, as a true tree of life, assisted by the hypodermic needle, the æsthesiometric probe, and incarcerating rings, will make earth once more a paradise.

E. W. W.

A System of Practical Medicine by American Authors. Edited by Wm. Pepper, M.D., LL.D., etc., assisted by Louis Starr, M.D. Vol. IV. Philadelphia: Lea Bros., 1886.

This volume is devoted to diseases of the genito-urinary system, the muscular system, diseases of the skin, and medical ophthalmology and otology. It embraces subjects not always discussed in "systems of medicine," and, where the topics pertain rather to the domain of surgery, the aim of the writer is often to take rather a medical than a surgical view of the field.

The gynæcological portion of the book is quite full, and embraces articles from many eminent specialists, and forms a section of great interest and value. While it would be invidious to draw too many comparisons, and where so many valuable articles are brought together, we confess to being particularly impressed by Dr. Ed. L. Key's excellent chapter on "Diseases of the Male Bladder," Dr. Ed. C. Dudley's "Displacements of the Uterus," Dr. J. C. Reeves's "Disorders of the Uterine Functions," Dr. Byford's three articles on "Fibrous Tumors," "Sarcoma and Carcinoma of the Uterus," and Dr. Wm. Goodell's "Diseases of the Ovaries and Oviducts." Dr. Alexander J. C. Skene, in "Organic Diseases of the Bladder," seems still almost as heedless of the value of belladonna and its alkaloid in these affections as when he wrote his "Diseases of the Bladder and Urethra in Women" some years ago. Dr. Geo. J. Engelmann gives us an excellent chapter on "Abortion," going into rather than over the many intricate questions of diagrams and management so familiar to those who have made family practice a business. These articles form an invaluable collection of monographs upon subjects of kindred interest, and have an entirely unique value. A vast mass of literature would require searching and sifting to bring together all the matter here prescribed in but a portion of a single volume.

The section on "Diseases of the Muscular System" contains Dr. J. C. Wilson's suggestive and practical article on "Myalgia," Dr. Jas. Tyson's "Progressive Muscular Atrophy," and Dr. Mary Putnam Jacoby's "Pseudo-Hypertrophic Paralysis."

The section on "Diseases of the Skin," by Drs. Louis A. Duhring and Henry W. Stelwagon, gives us in moderate compass the most recent views and approved methods of treatment.

Perhaps the most striking and erudite article in the book is that on "Medical Ophthalmology," by Dr. Wm. F. Norris, covering about fifty pages. It has demanded for its production not only a great amount of general and special medical knowledge, but that rare faculty which enables a writer to see the general dependency and intimate relationship of many topics, by no means kindred, to the superficial and merely systematic observer. The aim of the article is "to give an account of the eye-symptoms which may be seen in the course of diseases of the general system and in connection with the pathological conditions of the various organs of the body." Carrying out this aim, Dr. Norris has produced a truly invaluable article.

"Medical Otology" concludes the volume, and is written by Dr. George Strawbridge. While more limited in its scope than the preceding article, it will prove of great use to the practitioner.

Of many articles in this volume we have made no mention. Nearly all will be found to be able presentations of the subjects they discuss. Some topics of great importance are hastily treated, and the captious will find much to criticise; but, as a whole, we consider vol. iv. as the most valuable of the series so far issued.

Insanity and its Treatment. Lectures on the Treatment, Medical and Legal, of Insane Patients. By G. Fielding Blandford, M.D. Oxon. New York: William Wood & Co., 1886.

The present volume is one of the issues for the year 1886 of William Wood's Standard Library, and is, we presume, a reprint of the London book, or, in other words, is one of those appropriations of the property of other people which, being at present legal, are still

respectable, but which the passage of a proper International Copyright law will make a moral crime. We have read a great part of the book with much satisfaction. The English is good and clear (we wish as much could be said of the type), and the whole impress left upon the mind is that the work is the product of one who possesses good common sense, has not been driven mad by an excess of German speculative medicine, and has seen much of insanity. We have been especially interested in the chapter upon classification, which practically leads to the conclusion, which we ourselves reached some time ago, that there is at present no possible satisfactory classification of insanity. Perhaps we might confess that we have had an acute attack of the Germanic fever, but are now in that condition of exhaustion preceding convalescence which leaves the mind full of remorse and good determinations for the future, and that the present volume has been decidedly tonic in its action upon it.

If we have any criticism to make of the present work, it is that it conforms too closely to nature for the use of the student. Undoubtedly in nature one form of insanity merges into another, and all manifold groups, which have been separated by specialists, are, in real life, dovetailed into a composite entity. For the purposes of the student, the arbitrary groups are, however, necessary for him, and they should be drawn clearly and sharply. After, but not before, the knowledge of these types has been acquired, the dovetailing and interweaving processes may take place in the mind of the student. A wider knowledge of literature on the part of the author would, perhaps, have saved some mistakes. Thus, we read, page 193, that the patella reflex in general paralysis of the insane is at first exaggerated, afterwards dull, and finally absent, and on page 205, locomotor ataxia is not likely to be confounded with general paralysis of the insane. Now, the truth is, that locomotor ataxia is exceedingly frequent in general paralysis, and that it sometimes precedes and sometimes follows the development of the cerebral disease. Moreover, not rarely, instead of the sclerotic change attacking the posterior columns, it attacks the lateral portions of the cord, and the condition of the patella reflex depends upon the condition of the spinal cord, and is entirely independent of the brain-changes.

In dismissing this book, we want to again say that we consider it an extremely valuable practical work for those under whose charge the insane are brought.

VON ZIEMSSEN'S HANDBOOK OF GENERAL THERAPEUTICS. Vol. IV.
New York: Wm. Wood & Co., 1886.

The fourth volume of this seven-volumed handbook is devoted to a discussion of the treatment of disease by climate and to general balneotherapeutics, the first part being written by Dr. Hermann Weber, the second by Prof. Otto Leichenstern. The same general characteristics that have distinguished the previous volumes are present in the one before us,—great attention to minutiæ, great striving after scientific results, with a practical result hardly commensurate with the amount of labor. The knowledge of German literature displayed is very great, but the reader would be led to think that, outside of German, neither the science nor the art of medicine existed. For the well-trained American practitioner, who will read with discretion and care, much of value exists in the volume, but for those who desire an absolute guide the present book leaves still an hiatus, especially in regard to balneotherapeutics. Not only is there nothing whatever in regard to our American springs and baths, but very little virtue seems to be attached to any bubbling water that is not heavily impregnated with the joys of the Fatherland.

LECTURES ON THE DISEASES OF THE NOSE AND THROAT. DELIVERED DURING THE SPRING SESSION OF JEFFERSON MEDICAL COLLEGE. By Chas. E. Sajous, M.D., Lecturer on Rhinology in Spring Course at Jefferson Medical College, etc.
Philadelphia: F. A. Davis, Att'y, Publisher, 1885.

Dr. Sajous has given the medical world a carefully written, excellently illustrated work upon the subject of Diseases of the Nose and Throat; in fact, the illustrations are of unusual value, and are introduced with the utmost profusion. One hundred chromo-lithographs from oil-paintings by the author, and ninety-three engravings on wood, are given away with each volume. The author's experience is wide, being drawn not only from private practice as a specialist, but still more extensively from his connection with one of the largest special clinics in Philadelphia. He has aimed at interesting the general practitioner, his style being easy, clear, and free from too much technicality, and we readily see that the book will prove attractive to many who do not pursue special practice. The book illustrates well the fact that there exists a germ of decay in the apparently flourishing body of specialism, and the years will be few before we see all general practitioners of average capacity the possessors of

equal knowledge in all branches with the specialists of to-day. While aiming at little originality, the author claims to give to his work the results of "testing the therapeutic value of new methods." And we find at least two new things,—the new names which he has bestowed upon post-nasal catarrh, now "posterior nasal pharyngitis," and hay-fever, which appears as "periodical hyperæsthetic rhinitis." This latter name is so simple, fluent, and mellifluous that the public may actually clamor to have it, and it seems to us an exceedingly ingenious thing, when there is nothing new left to be done for the miserable old disorder, this giving it a new name and treating it all over again. Concerning the former disease, the author remarks, "The almost universal prevalence of post-nasal catarrh in this country has given rise to much speculation among specialists." The author, from want of space, will only state those views as to causation which he has personally entertained for some time. He then goes on to tell us about "chronic inflammatory processes in the neighboring parts," hypertrophic polypi and other growths, ignoring entirely the great question of whether the human nose was originally framed rapidly by its Creator, or slowly by evolution, strong enough to endure the peculiarities of our American climate, whether we as a race, rather mixed to be sure, are able to endure it, or whether any other race is better fitted. He fails also to investigate the burning question as to whether the American Indian had or has post-nasal catarrh, or hay-fever either. Has the noble savage ever been observed in a frequent use of the pocket-handkerchief, or in those substitutes for it somewhat in vogue among our imported citizens? Certainly he has had free access to climate and to pollen for centuries. Now, all these questions lead up to what we consider a rational treatment,—protect from the rough climatic changes, or raise the standard of the individual to meet them; but the nasal specialist prefers rather to abolish partially the nasal organ. Why not snip it off in the newly-born? Circumcise the nose as it were, uniting the raw edges with neat sutures, carbolized silk-worm gut preferred. Or, in the yielding state of the infantile bones, obliterate by pressure the nasal cavities. Perhaps, better still, permanent silver tubes, self-retaining, might be passed in either nostril, and compression then used. True, the senses of smell and taste would be destroyed; but smell is often offended, and taste there is no rule for. By these tubes the air would be conveyed to the lungs without impinging upon the too sensitive nasal membranes, and, if not sufficiently warmed, small wire diaphragms might be fitted to the outer end of the tubes. The beauty of another nose would no longer excite envy; no noses would be broken or bitten off in the exercise of angry passions; following one's nose, which so often leads one in devious ways, would be impossible, and the terms Roman, aquiline, Grecian, and, best of all, the derisive word "pug" would fall into oblivion. The nose no longer being used, a few generations would direct the unused developmental energies of the economy to other parts,—brain perhaps, ears probably. No longer would our nasal tone be commented on so freely by the inhabitants of Britain, pocket-handkerchiefs could be abandoned, and bronchial catarrhs might also disappear when they attempted to begin in the head and were foiled. The remedy snuffine, so dangerous to mention, would not be mentioned for obvious reasons, and the nasal specialists, rested and refreshed, could organize invasion into the territories of the oculist and the aurist.

Among the many topics treated of by the author we find a chapter on epistaxis. This contains a valuable summary of the treatment of this at times very obstinate condition. The author recommends packing the anterior nares in obstinate cases, when the bleeding-point is sufficiently anterior. This is sometimes difficult to determine. The mere appearance of blood at the posterior nares, when the head is erect, by no means indicates that the source of the trouble is posterior; in fact, in the absence of definite information, packing the anterior nares should always be tried before plugging the posterior, an operation by no means easy, and at times, from constitutional causes, impossible. The pledgets employed are tied on a strong silk thread at frequent intervals, and the author recommends saturating them with styptics in solution before application; but plain absorbent cotton, smeared with vaseline to promote easy application, is much more readily used; in fact, the nostrils are packed for the sake of the pressure exerted.

In discussing the treatment of chronic post-nasal catarrh, the author says (page 229), "Agents which are partly eliminated through the glands of the nose and throat, when taken internally, are sometimes very serviceable." Cubebs is the principal remedy he has in mind, and ammonia with ipecac. We would suggest

eucalyptus, which has proved serviceable in many obstinate cases, as worth a further trial; and among local applications tinct. benzoini comp. of the Pharmacopœia.

In chronic and follicular pharyngitis, among the many local applications recommended, we look in vain for ergot, which, locally applied, alone or in combination with glycerin, possesses the same power as elsewhere, of constricting the dilated vessels. A few days' employment will often cause a visible diminution of their enlargement, and a simultaneous relief of the annoying dryness. The author describes membranous pharyngitis, and among its synonymes gives "aphthous sore throat," "croupous pharyngitis," and "herpes pharyngis." We think the latter synonyme an error, for, following the author's description closely, we find him enumerating among its causes "exposure to the influences of infectious matter, or close contact with persons suffering from diphtheria, scarlatina, etc." Our objection is a double one. There may be a special separate disease, "membranous sore throat," but if so, it is not caused by exposure to scarlatina and diphtheria. Else, in all human probability, it is but modified diphtheria, and can give the contagion to others; in fact, the profession is at present, thanks to the laws for the compulsory notification of infectious diseases, engaged in dodging the whole question. Adults are seldom attacked with severe diphtheria. They generally have the so-called diphtheritic sore throat; in fact, about what Dr. Sajous terms membranous pharyngitis. But the fashion of the day is to ignore light cases of diphtheria. Of all diseases it alone presents, according to most authorities, no light cases. Its mortality is high. In order to have it a child must either die or barely escape with its life; but the adult, with his simple patchy sore throat, is, in our opinion, in most cases, the disseminator of the poison which strikes so mysteriously. The second objection we make to the author's synonymes is in "herpes pharyngis" being named as equivalent to the condition under consideration, for there is a true herpes of the throat, seldom seen, we grant, but really existent, characterized by the same peculiarities as herpetic affections elsewhere, vesiculated in clusters, or in line of clusters, traversing the pillars, the soft palate, and the posterior pharynx, and it presents no points of similarity with the description of Dr. Sajous. It is caused by inhaling very sharp, dry, cold air through the open mouth, and, except the local pain, presents no great constitutional disturbance.

Taken as a whole, the volume of Dr. Sajous, however, will prove very useful, though we warn the beginner not to expect always to find the peculiar florid mucous membranes depicted in the author's chromos. The chapter on tracheotomy, towards the end of the book, gives us an illustration of the author's scale for tracheotomy tubes. For use in cases from six months old to twenty years he advises oral tubes, and has given a very excellent chapter on the subject.

E. W. W.

HANDBOOK OF PRACTICAL MEDICINE. By Dr. Hermann Eichhorst, Professor of Special Pathology and Therapeutics, and Director of the University Medical Clinic in Zurich. *Volume I.* DISEASES OF THE CIRCULATORY AND RESPIRATORY APPARATUS. One Hundred and Three Wood Engravings.
New York: William Wood & Company. 1886.

This is a somewhat elaborate handbook, and is a work of a high order, notwithstanding its modest title. Beginning, *in medias res*, with diseases of the circulatory apparatus, it is at once practical and concise. There is no waste of words in rewriting the well-worn introductories, but the subjects are handled in the most practical and thorough manner at once. Throughout this section special attention has been given to the illustration of sphygmographic tracings. The section includes diseases of the pericardium, heart-muscle, endocardium, neurosis of the heart, and diseases of aorta; diseases of larynx specially illustrated; of the bronchi, lungs, pleura, and mediastinum complete the volume. The chapter on the endocardium is one of the most able. The study of malignant endocarditis which the author gives is very thorough and complete. He considers the bacterial origin of this disease as fully established. Though generally traceable to wounds and septic poisoning through them, as in operations, injuries, puerperal fever, etc., it follows acute infectious diseases also, and at times "no cause can be demonstrated." Old rheumatic joint and endocarditic changes are often found previously existent. The pathological changes are minutely described, with the researches up to date into the bacterial problem.

The author says, p. 73, "The symptoms are extremely manifold." "In other cases the causes of the pericarditis are so prominent that the latter remains hidden," and "we may boldly maintain that no two cases are entirely alike." "In the typhoid form, days and even weeks may elapse before the diagnosis is decided, in other cases the diagnosis

of typhoid fever, which had been made with certainty, is suddenly overthrown on account of new developments, and changed to septic endocarditis," while previously we read, "In some cases death occurs in a few hours or days."

P. 75: "The differential diagnosis between intermittent fever and septic endocarditis may be undecided for a long time," and "as a rule the disease is recognized with great difficulty." "Special weight must be attached to embolic processes which are susceptible of external examination," as retinal hemorrhages in the diagnosis from typhoid fever. As for treatment, support strength, combat inflammation, prevent the detachment of emboli, and destroy the bacteria. To do the last mentioned the author advises salicylic acid and its compounds, large doses of alcohol or quinine, corrosive sublimate claiming some apparent successes, benzoic acid and benzoalis, which deserve some trial; resorcin, which is doubtful and probably dangerous; ice-bags over the heart, and where the pulse is rapid digitalis and nitrate of potassium.

The chapter on "Neurosis of the Heart" embraces nervous palpitation, nervous cardiac pain, Basedow's disease, and intermittence of the heart. In the treatment of angina, ice-bags to the cardiac region are mentioned as sometimes useful, and sometimes "they do not act well." Hypodermic morphine is surprisingly and rapidly beneficial, but not devoid of danger, nor are chloroform or ether inhalations safe. Amyl nitrite "will only be useful" when there is "coolness, pallor, or a livid color of the skin." The recently-advised use of potassium iodide is not mentioned by the author.

In the chapter on "Diseases of the Bronchi" there is given an appendix on diseases of the tracho-bronchial lymphatic glands. Acute inflammatory enlargement of these glands, the author tells us, is an almost constant concomitant of acute inflammation of the air-passages. Rupture of these glands "is evidently not a frequent cause of death," though their suppuration, rupture, and discharge is very common.

The chapter on "Hæmoptysis" is rich in diagnostic suggestion. The chapter on "Alveolar Emphysema of the Lungs" contains, among other illustrations, one of a pneumatic cabinet. The two figures, presumably medical, seated in its spacious interior, are engaged, the one in reading the other in meditation. As the air became rarefied their positions probably change to others more active and earnest, though less dignified and graceful. Throughout the work the illustrations are apt and instructive, and as far as the first volume goes it promises us an exceedingly useful and thorough work on the subject of practical medicine. E. W. W.

SEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF ILLINOIS, with an Appendix, 1885.
Reprint of National Board of Health. 1885.

The expectation of cholera has given State and National Boards of Health a large and comparatively inexhaustible topic, and enabled hundreds of local sanitary authorities to rewrite and publish at public expense the threadbare history of the disease. On paper, how hard they have striven to protect us! Off paper, perhaps from no fault of their own, how little they have done! The very paper on which they print their protests against the importation of infected rags has probably been made from infected rags admitted, with the thorough disinfection which a few mild protests and a square back-down always give. The National Board's Report gives us a summary of the sanitary legislation throughout the United States, and in the Appendix a table of the mortality in cities and towns of the United States for 1884, beginning with Bath and ending with San Francisco.

The Illinois Report is mostly made up of tables of vital statistics; contains a list at the end of the medical colleges of the United States and Canada from 1765 to 1885, which may prove useful for reference; gives us any amount of cholera literature, and decisions under medical practice laws throughout the United States. E. W. W.

CLIMATOLOGY AND MINERAL WATERS OF THE UNITED STATES. By A. N. Bell, M.D., editor of the *Sanitarian*, etc.
New York: William Wood & Co., 1885.

To know our own range of climate thoroughly is to take the first step to its proper use. To do this we must have a clear understanding of the varied conditions which are met with over a very extensive territory, ranging in extremes from tropic to polar. A good guide to the varieties of weather likely to be experienced at any given time in the year, in any given place, is invaluable, when sending our patients in quest of a healthier or more suitable atmosphere than their own locality affords. The probable amount of rainfall, the extreme variation of the thermometer, the dryness and the moisture at given seasons, the general features of the

country, nature of the soil and the geological formations underlying it, and the nature of its waters, all these are necessary knowledge to-day.

The matter of mineral springs alone is very important. To have in one handy volume an analysis of every native spring whose waters have become prominent in the treatment of disease is by no means a small matter, and Dr. Bell has done the medical world a great service in collecting the varied and useful information on these subjects which we find in the volume before us. As a book of reference it will often prove exceedingly valuable.

E. W. W.

DICTIONARY OF PRACTICAL SURGERY. By various British Hospital Surgeons. Edited by Christopher Heath, F.R.C.S., etc.
Philadelphia: J. B. Lippincott Company, 1886.

Full without prolixity, written by experienced writers whose very names claim respect, recent as possible, compact and legible, these are the requirements of a good dictionary of technical science, and the one before us answers the conditions well. As we turn its clearly-printed pages we see appended to the articles well-known names,—names of men especially fitted by experience and special study for their allotted work. We find nothing slighted. Extensive articles where needed. Much condensed in small space where possible. An investigation of special topics leads us to believe that the editor has been fully alive to the necessity of securing recent and fresh work, fully up to the busy times in which we live, when too often the carefully-wrought work of to-day is eclipsed by the work of to-morrow.

As a dictionary of surgery the editor has taken a broad view of his work, and has made the field as wide as possible. We notice many articles of interest which occupy the debatable ground between surgery and medicine. Gynæcology has not been slighted, nor eye-, ear-, and skin-diseases. The arrangements for ready reference, the cross-references, the headings, are all as complete as could be desired.

Among the many contributors the eye strikes the names of Felix Semon, Christopher Heath, Watson Cheyne, J. Warrington Haward, William Stokes, Henry Power, Robert Liveing, G. V. Poore, Victor Horseley, Sampson Gamgee, R. J. Goodlee, J. Knowlsby Thornton, Henry F. Chavasse, Brudenell Carter, Stephen Mackenzie, Thomas Smith, Jonathan Hutchinson, Bernard Roth, and a host of other names mostly familiar to the reading man, and giving him confidence in the reliability and authoritative character of the book. And we can cordially recommend it to all who need a Dictionary of Surgery.

E. W. W.

A MANUAL OF DISEASES OF THE SKIN. By Balmanno Squire, M.B. Lond.
Chicago: A. N. Marquis & Co., 1886.

To relate fully but briefly what is known at present respecting diseases of the skin is the author's aim in this work. Of such moderate dimensions is it that it can readily be carried in the pocket. It affords one an opportunity to familiarize oneself with the most recent views and practice in skin-affections, using the book at odd moments, and yet finding that with all its condensation it is by no means a bare outline of the subject. The author omits eruptive diseases and cancer, and insists on the great primary necessity of an accurate diagnosis. Yet he admits that the "imperfect state of cutaneous pathology throughout Europe" leaves diagnosis in an unsatisfactory state. Blind reliance in the efficacy of specifics is deprecated, and he says, "We have now better means at our command than a course of arsenic, sarsaparilla, or dulcamara." He does not deny that arsenic has its value, but speaks of it as the specific that has fallen most. Throughout the book the author will be found drawing largely on his own experience, and disposed to discard this and that mode of treatment on the ground of its inutility in his hands. The therapeutics of the book, as judged from a rapid perusal, are sound, and the hygienic recommendations made with great care and minuteness, and many practitioners, we venture to think, would be much wiser for a thorough reading of its pages.

E. W. W.

Correspondence.

WAS IT CANTHARIDES-POISONING?

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—I was called to see Mrs. B., a spare, nervous woman of about 45, at noon on Saturday, September 5, 1885. She was in stupor, extremities cold, pulse about 120, and very weak, with mild tetanic spasms every five minutes. Respiration seemed normal; the pupils were equal and normal.

The only history I could get at the time

was that her family found her about 10.30 A.M. sitting in her chair, partly stupefied, and complaining incoherently of being sick.

They got her into bed, where she grew rapidly worse while they were waiting for a doctor. She became, so they said, pulseless and extremely cold, so they thought death imminent. At last they began giving brandy in small and frequent doses, and considerable improvement in pulse and temperature had, they said, resulted before my arrival.

After several doses, about 15 drops each, of aromatic spirits of ammonia, at fifteen-minute intervals, and a hot mustard foot-bath, I succeeded in rousing her so as to answer questions. She complained, however, of nothing but pain in the back upon movement.

As all the prominent symptoms had improved, I ordered the stimulant to be continued in diminished doses every half-hour, while I went to my dinner.

Returning at 2 P.M., I found her sleeping naturally, and her pulse and temperature nearly or quite normal. She had in my absence developed a new symptom, strangury, and had passed, with considerable straining and pain, two stools, together about half a coffeecupful, of mucus mixed with blood.

She had returned to perfect consciousness before falling asleep.

Without awaking her, I left a mixture of opium and ergot, in pretty full doses, to be given when she awoke, and repeated frequently, if necessary, and called again at six o'clock.

At this time she was "as well as ever, except a little tired." She gave this account: In the morning she had felt unusually well, had eaten a hearty breakfast, partaking only of the same dishes as the rest of the family.

At about 10 A.M., while visiting a neighbor, she began to feel an indescribable sensation "in her stomach," not nausea, nor real pain, but a queer feeling, entirely new to her.

In her walk home her head began to swim, her fingers and toes to tingle, and "every drop of blood in her body just boiled." She had a desire to go to the privy, but was afraid to do so lest she should become worse there, and not be found by her family. She had no vomiting at any time. She insists, in spite of her husband's ridicule, that just before she lost consciousness her fingers "turned perfectly black as far up as the second joint."

She had had since childhood no previous illness except sciatica. For this she applied a blister, three by four inches, to the hip on Tuesday, the 1st of September, leaving it in place twelve or fourteen hours. On Thursday, having pain in the knee, she reapplied the same blister to the calf of the leg, and removed it after about eight hours. In both applications the pain was relieved, but she noticed no other effect, except that the Thursday blister "filled up with yellow corruption" instead of water, as on Tuesday.

Now, the query is, Was this a case of cantharides-poisoning? If not, what was it? If she was poisoned by absorption from the blister, why were the symptoms delayed from Thursday evening to Saturday noon, at least thirty-six hours after its final removal?

Excepting some neuralgic pains, she has been in good health since that time, now over six months ago.

I would be glad to have any of the readers of the GAZETTE enlighten me as to the nature of the above case.

Very respectfully yours,

E. H. BIDWELL, M.D.

VINELAND, N. J.

HEMICRANIA TREATED BY FLUID EXTRACT OF TONGA.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN,—I usually have two to three cases of hemicrania every year in my practice, and heretofore I have had no trouble in curing all my cases either with large doses of sulphate of quinine, or other remedies used in such cases, such as bromides of potassium, sodium, or ammonium, gelseminum, sulphate of nickel, croton-chloral, or morphine, as seemed specifically indicated.

But recently I treated a severe case, in a young woman aged 26, of two months' standing, during which time I gave alternately all of the above remedies a fair trial, though none seemed to do any good. She was free from pain only while under the influence of hypodermic injection of morphine.

This being rather a severe case, perhaps I had better give the leading symptoms, as then a proper diagnosis can be made. The pain commenced gradually in the right half of the head, but in a few days the paroxysms became very painful, accompanied with slow circulation, cold skin, oculo-pupillary and caloric disturbance. During a severe paroxysm the pain, as the patient expressed it, was of a constricting character, covering the entire right side of the head, which would be increased by pressure. There was more or less nausea and vomiting; appetite indifferent. During a severe paroxysm there were hallu-

cinations present, the patient hearing noises in the ear, seeing sparks of fire, wanting to go somewhere, or expecting some one to come. During the remissions she would feel nearly free from pain, as long as she was quiet. The secretions and excretions were normal. No organic disease in any part of the system.

After having used all the leading remedies, I picked up a copy of the THERAPEUTIC GAZETTE, in which I noticed a number of such cases treated by the fluid extract of tonga. Having it in my office, I prescribed in 30 minim doses every three hours, giving three doses of the tonga every twenty-four hours.

The patient took nine doses, which effected a radical cure, and recovered rapidly. I report this severe case for the benefit of others.

JOHN A. HENNING, M.D.

GARNETT, KANSAS.

Notes and Queries.

BUISSON'S TREATMENT OF HYDROPHOBIA.

Centres have been established in various parts of London and in a few provincial towns for carrying out M. Buisson's treatment of hydrophobia. The wound is washed with a solution of ammonia; the patient has a daily vapor-bath at a temperature of 42° to 48° Réaumur, with a view to producing profuse perspiration for seven consecutive days, and draughts of a hot infusion of borage, also with a view to promoting the diaphoresis. Dr. Buisson is said to have cured himself after the development of the symptoms of hydrophobia. He and his disciples regard the method as an infallible preventive of hydrophobia, and as an equally certain cure, if begun on the first day of the developing disease; on the second day its effect is less certain, and later it has no effect in staying the course of the malady. As to the merits of the treatment we can assert nothing. It is alleged to have prevented or to have cured the disease a hundred times. But the sources of fallacy are innumerable. We do not yet know the proportion of individuals bitten by a mad dog who become the subjects of hydrophobia. It is difficult to conceive that profound sweating can stay the course of a disease which seems to be due to the development of a living germ in the medulla oblongata. That washing a recent wound with liquid ammonia and making the individual perspire profusely should be able to prevent the disease can be reasonably conceived.—*Lancet*, April 3, 1886.

THERAPEUTICS OF TRICHINOSIS.

The value of glycerin in the treatment of trichinosis has been repeatedly alluded to in the GAZETTE. FIEDLER noticed several years ago, in the preparation of microscopic specimens, that trichinæ and their embryos died at once when brought in contact with glycerin (even if diluted with two to three times its quantity of water). This was evidently the result of the hygroscopic power of glycerin, causing the abstraction of water from the parasites. This fact led Fiedler to treat animals, fed purposely with trichinous meat, with glycerin, but he did not obtain any positive results. Later he exhibited glycerin in several cases of trichinosis in man, and was successful. Mercel also published a case of trichinosis cured by glycerin, so that the profession regards this drug justly indicated in this affection.

In the *Deutsches Archiv für Klinische Medizin.*, vol. xxxvii. No. 12, Fiedler recommends the hourly administration of a tablespoonful of pure glycerin in trichinosis, though only in graver cases, as large doses of the drug may produce hæmoglobinuria and other toxic symptoms.

In this instance the employment of Unna's keratine pills, or keratine capsules, which dissolve only in the small intestines, would appear very appropriate. To complete the abstraction of water from the parasites, Fiedler advises to give large doses of alcohol and to prescribe a rigid dry diet. Glycerin may also be injected into the rectum. A powerful purge, though, is to precede all these therapeutic measures.

THE USE OF LANOLIN IN OINTMENTS.

At the meeting of the College of Physicians of Philadelphia, held April 7, 1886, DR. THOS. G. MORTON (*Med. News*, May 8, 1886) made some remarks on lanolin, and exhibited a few specimens of this preparation from the wool of sheep. Those who have used it have been much pleased with its employment in the preparation of ointments for external application. It can be readily rubbed into the skin and produces no irritation, and, therefore, would probably be valuable in massage. It is probable that substances combined with lanolin will be more readily absorbed than if prepared with other bases.

One of the remarkable properties of lanolin is that it can be readily combined with water. It takes up more than its own weight of water. Unna states that cooling ointments should

contain large quantities of water. Dieterich, with a view to determining the quantity of water taken up by different salve bases, experimented with twenty-one different bases at a temperature of 15° C., taking for each experiment 100 parts of the base. His results were as follows: Cosmoline took up 4 parts of water; lard, 15; benzoinated lard, 17; and lanolin, 105.

Lanolin, as it now appears in the market, is a perfectly neutral base, and hence is not apt to decompose any medicament which may be added. Lassar experimented with it on four hundred patients, and states that lanolin is readily absorbed by the skin, does not produce any irritation, and permeates the lower layers. Bachmann rubbed a ten per cent. iodide of potassium ointment, made with lanolin, into the skin for five minutes. After the lapse of half or three-quarters of an hour, iodine was detected in the urine. The elimination of the iodine by the urine continued for fourteen days after several applications of the ointment. Lanolin was used by the ancients, and is mentioned by Ovid, Herodotus, Plinius, and Aristophanes.

Liebreich patented his process in the United States in January, 1883, and it is concisely stated as follows:

"He takes the suds from the washing of wool in the mill, submits it to the action of a centrifugal machine which separates the soapy, oily suds from the dirt associated therewith, decomposes the suds by an acid, whereby the acid and the saponifying alkali unite and the saponified wool-fat is separated, combined with about one hundred per cent. of water; this is then thoroughly washed with cold water, then heated so as to separate the water and the wool-fat, and again combined with a definite proportion of water, and lanolin is the result.

"Or, he treats wool with alkaline water, producing his suds in that way, and then proceeding as already outlined.

"A much quicker and less complex way of making the article is to treat the wool directly with petroleum benzine; distil off the benzine, and the wool-fat remains; combine this with a proper proportion of water, and lanolin results. In his patent specifications, Liebreich speaks of this process, but says it is objectionable because of the difficulty of getting rid of the benzine odor.

"Merino wool, clipped without the sheep being washed, contains, it is said, the enormous proportion of sixty per cent. of this fat.

"When it is considered that all wool averages about forty-five per cent. of its weight of this fat, that it has all to be removed before the wool can be manufactured into fabrics, that up to this time it has had no value, that the process for its extraction is not a very expensive one, and that lanolin is thirty per cent. water, it appears reasonable that lanolin will certainly be as cheap as lard as soon as competition in methods of extraction and in supplying have an opportunity to affect its price."

Dr. Keen remarked that he had used lanolin in several instances during the last week or ten days. One case was that of a child, 8 years of age, with an enlarged gland under the jaw, the size of an English walnut. He prescribed iodine, 2 grains to the drachm of lanolin. He saw the child a week ago, and the swelling had almost entirely disappeared. This was a more rapid disappearance than he had ever seen from other iodine applications. This is the only case in which he had any results, although he had used it in a number of instances, and liked it very well.

FOOD PRESERVATIVES.

An interesting paper was recently read by MESSRS. SULMAN and BERRY before the Chemical and Physical Society of University College; it was important also from its practical bearings on the preservation of foods, and especially milk. Their investigation, limited to the boracic, salicylic, and benzoic compounds, proved that such substances as aseptin, glacialine, and boroglyceride owed their preservative qualities almost exclusively to the free acid contained in them. Boroglyceride contained twenty-five per cent. of the genuine boracic ether of glycerin, and seventy-five per cent. of free acid and glycerin in equivalent proportions. The true compound, the ice-like solid, is immediately resolved into free acid and glycerin by the addition of water, and this reaction probably takes place when the true compound comes into contact with aqueous liquid or animal tissue. We agree with the authors of the paper that the use of so much free boracic acid is undesirable and injurious, especially as a preservative of milk for children. Salicylic acid and salicylates are not substances that can be used with impunity, and as they appear to be useless as preservative agents, their rejection is doubly necessary. Again, benzoic acid precipitates the casein of milk. The best agent appears to be benzoate of sodium, which is tasteless when pure, is one-third more power-

ful than boracic acid, and innocuous when taken in small quantities for prolonged periods. —*Lancet*, April 10, 1886.

ON SAPONIMENTS.

The chemical factory of Dietrich, in Helfenberg, near Dresden, has, as we have learned, brought recently into the market a line of new preparations called saponiments, or medicinal opodeldocs, which are intended to compete especially with the medicinal soaps. As the base of these saponiments Dietrich uses neutral oil and stearine soaps prepared by dialysis. These soaps are dissolved in acetic acid and incorporated with such medicinal substances as are mostly used in the dermatological practice. The saponiments can be prepared in the shortest time, and in the smallest quantity,—are more constant than soaps, and contain the active principles in a more concentrated manner than these. In acute inflammatory diseases of the skin the saponiments cannot be employed: their proper place is in chronic, squamous, pruriginous, and parasitic dermatoses, in acne, ichthyosis, and especially in the affections of the hairy skin.

THE METRIC SYSTEM.

We have always made it a rule in making our abstracts of papers from foreign journals to convert the metric system into apothecary's measure: sometimes we have overlooked this, and to facilitate this conversion in the future, we call attention to the following rules published by Dr. Otto A. Wall in the *National Druggist*, May 7, 1886. Dr. Wall claims that rules for converting grains into grammes or *vice versa* with mathematical exactness are superfluous under all ordinary circumstances; for when exactness is really desirable, it can be better secured by referring to tables of equivalent quantities, and when it is not necessary, these rules are too cumbersome and tedious for practical use.

Equivalents of Fluid Measure.

15 minims	= about	1	cubic centimetre.
1 fluidrachm	= about	4	cubic centimetres.
1 fluidounce	= about	30	cubic centimetres.
1 pint	= about	0.5	litre, or 500 cubic centimetres.
1 quart	= about	1	litre, or 1000 cubic centimetres.

Equivalents of Weights.

1 grain	= about	0.06	gramme, or 6 centigrammes.
15 grains	= about	1	gramme.
1 drachm	= about	4	grammes.
1 troy ounce	= about	30	grammes.

For use in constructing a metric prescription, it becomes necessary to adopt some easy rules for conversion from apothecary's to metric weights. The simplest method is as follows:

Multiply ounces by 30 to get the number of grammes. Multiply drachms by 4 to get the number of grammes. When there are less than 60 grains, divide by 15 to ascertain the number of grammes. If there is a remainder, or if the number of grains is less than 16, we may reduce to fractions of a gramme, as follows:

Assume the gramme (written 1.00 Gm.) to be equal to 15 or 16 grains. To convert any number of grains less than 16 into centigrammes, think what fraction that number is of 15 or 16, as may be most convenient, and then take that fractional part of 1.00 gramme to express the metric equivalent, ignoring fractions beyond the second decimal place.

The following will make this clear:

1 grain = $\frac{1}{16}$ of 16 grains; $\frac{1}{16}$ of 1.00 gramme = 0.06 gramme.
2 grains = $\frac{1}{8}$ of 16 grains; $\frac{1}{8}$ of 1.00 gramme = 0.12 gramme.
3 grains = $\frac{1}{5}$ of 15 grains; $\frac{1}{5}$ of 1.00 gramme = 0.20 gramme.
4 grains = $\frac{1}{4}$ of 16 grains; $\frac{1}{4}$ of 1.00 gramme = 0.25 gramme.
5 grains = $\frac{1}{3}$ of 15 grains; $\frac{1}{3}$ of 1.00 gramme = 0.33 gramme.
6 grains = $\frac{2}{5}$ of 15 grains; $\frac{2}{5}$ of 1.00 gramme = 0.40 gramme.
8 grains = $\frac{1}{2}$ of 16 grains; $\frac{1}{2}$ of 1.00 gramme = 0.50 gramme.
9 grains = $\frac{3}{5}$ of 15 grains; $\frac{3}{5}$ of 1.00 gramme = 0.60 gramme.
10 grains = $\frac{2}{3}$ of 15 grains; $\frac{2}{3}$ of 1.00 gramme = 0.66 gramme.
12 grains = $\frac{3}{4}$ of 16 grains; $\frac{3}{4}$ of 1.00 gramme = 0.75 gramme.

Or we remember that a grain equals 0.06 gramme, and multiply this by the total number of grains. For instance, 20 grains = 20 × 0.06 gramme, or 1.20 grammes; 35 grains = 35 × 0.06 gramme.

CASE OF RUPTURE OF THE LIVER IN WHICH PARACENTESIS WAS PERFORMED SUCCESSFULLY.

As recoveries from rupture of the abdominal viscera are extremely rare, the following case, which seems to be clearly of that nature, reported by Mr. Louis Fitzpatrick in the *Australasian Med. Gaz.*, April, 1886, is of interest. The case was that of a man aged 26 years, by occupation a laborer, who was run over by a wagon loaded with heavy stones, supposed to weigh in all about two tons. The wheel of the wagon passed over the limb, and in its progress severely crushed the shoulder-joint, broke from four to six ribs, passed over the region of the liver, slightly fracturing the top of the crest of the ilium. When Mr. Fitzpatrick saw him, he was suffering great pain, and was in a state of collapse from shock, and all the first day suffered from very severe pains, which he de-

scribed as being like the cramps of cholera. These were relieved by opium. On the second day the abdominal pain became intense, the temperature rose, and the eyes and body jaundiced; the urine dark and fæces white. The patient also vomited large quantities of bile. On the third night the symptoms of traumatic peritonitis became very marked, and although opium and hot fomentations appeared to relieve the pain, the abdomen was considerably enlarging; at first it was tympanitic, but became entirely dull, bulged out at the flanks, and fluctuation could be distinctly felt on movement. Mr. Fitzpatrick concluded from these symptoms that there must be a rupture of the liver, with an escape of bile into the peritoneal cavity, and he therefore performed the operation of paracentesis six days after the accident. Eight quarts of a bilious fluid containing flakes of lymph were drawn off by the aspirator; he was then bound up with hot bandages and kept very quiet. The rent in his liver or gall-bladder, wherever it may have been, soon healed, as the jaundice began to fade and the bile to appear in the stools. The urine became healthy, the skin clear, and six weeks after the accident he left the hospital well.

In this case the rupture must almost certainly have been in the gall-bladder, but the fluid drawn off in the peritoneal cavity was almost entirely free from blood, and if the rent had been in the substance of the liver, which is a highly vascular organ, there must have been very considerable hemorrhage.

PROCESS FOR LANOLIN.

Lanolin, obtained from the alkaline water-washings of wool, is a fatty body consisting of varying proportions of cholesterin and fat-acids, with which is incorporated a certain percentage of water, which, becoming quickly absorbed, forms a smooth, white, homogeneous, unctuous mass. GAWALOVSKI proposes a new method for its preparation, as follows:

The wool-washings are first passed through a fine sieve to free them from mechanical impurities, and then through a convenient quantity of cut-straw or sawdust; the solution is then treated with magnesium sulphate, and the resulting magnesium soap, containing also the cholesterin, is collected, well washed with water, then drained and allowed to dry by exposure to air. It is then treated with sufficient diluted hydrochloric acid to decompose the soap; a large excess of hydrochloric acid should be avoided, but sufficient added until a slight excess of acid is indicated, which is afterwards removed in the process. The resulting fatty scum, consisting of fatty acids and cholesterin, is drained and treated with petroleum benzine in a closed vessel, slightly warmed to about 85° F. to aid solution, and then filtered through flannel in a closed filter press. The petroleum benzine is then driven off by evaporation or distillation, and to remove any remaining traces of hydrochloric acid the residue is treated with from one-tenth to one-fourth per cent. of carbonate of magnesium, rubbed up with water, the mixture being then well washed with fresh portions of water until the water-washings are no longer milky from the presence of magnesium carbonate. It is again melted, filtered while hot through flannel, and, when cold, water is incorporated and the lanolin becomes white, hard, and smooth.—*Western Druggist*, May, 1886.

ACUTE ARTICULAR RHEUMATISM IN A MOTHER AND HER NEW-BORN CHILD.

DR. SCHAFER, of Pankow (Berlin), reports in the *Berliner Klinische Wochenschrift* of February 1, 1886, the following interesting case of a simultaneous rheumatic attack in a mother and her new-born child: Mrs. N., æt. 35, was seized a few days previous to her confinement with inflammatory rheumatism, attacking the left hip-joint and the right wrist. The child was born while the mother was still feverish, and fully under the influence of the rheumatic intoxication. Three days after birth a rheumatic swelling of both ankle-joints was noted in the child, together with a rise of temperature. Later the hip- and finger-joints became likewise affected, leaving no doubt as to the correct diagnosis. The child was treated with minute doses of salicylate of sodium, but without success; the medicine besides had to be soon discontinued on account of the gastric irritation it produced. After three to four weeks both mother and child improved.

There can be not the slightest doubt that we have to deal here with a case of acute articular rheumatism in a new-born child, contracted by infection from the mother in intra-uterine life. This case of infection is particularly interesting, as it tends to confirm the assumption, first pronounced by Edlefsen (Wiesbaden Congress), April, 1885, that rheumatism must be classed with the affections of an infectious nature. Neither in Henoch's

nor in Gerhardt's text-book on diseases of children can we find a single case of this kind reported, which is proof enough of its exceptional nature. In the *Lancet*, however (1882, p. 804), Ernest Pocock reports a case resembling very closely the one published by Schafer.

DANGEROUS ANTISEPTICS.

The value of an antiseptic is naturally proportionate to its influence as a destroyer of animal or vegetable life, but this is not the only test of its applicability in surgery and medicine. Some agents, though perfectly efficient as deodorizers or disinfectants, have been to a large extent superseded on account of their disagreeable smell, while others—and this is the class to which we wish to direct attention—have to be used with great care, on account of their liability to become absorbed and give rise to toxic symptoms. Three of the best-known and most popular antiseptics are included in this category, viz., carbolic acid, iodoform, and corrosive sublimate. All three are liable, when used as lotions or irrigations, to be absorbed and give rise to very distressing symptoms, and in some cases even to a fatal result. Corrosive sublimate is of comparative recent origin as an antiseptic, and is without doubt one of the most powerful agents at our command for this purpose. It is, however, like the others, liable to absorption, and owing to its intensely poisonous character the most untoward effects occasionally result from its use. In a recent number of the *Nouvelles Archives d'Obstétrique et de Gynécologie*, Dr. Lucien Butte has taken the trouble to collect the notes of some twenty cases of puerperal diseases in which the employment of the *liquer de Van Swieten* (a $\frac{1}{1000}$ solution of the perchloride) was attended with fatal results. From the rapidity with which fatal intoxication took place in most of the patients, the characteristic salivation and gingivitis were absent, and in several the cause of death was not suspected until revealed at the post-mortem examination, the abdominal pain and diarrhœa being attributed to puerperal causes. The symptoms generally presented themselves within from twenty-four to forty-eight hours, and rapidly led on to collapse. The effects were more marked in patients of a debilitated or cachectic constitution, and lacerations of the cervix or perineum or ulcerating surfaces seemed to favor absorption to a marked degree. With these facts before us, it becomes desirable to use the perchloride of mercury with great caution, even in extremely dilute solutions, and especially to watch attentively for any indication of its absorption. The absence of some of the characteristic symptoms in those very cases where from the rapidity of its action it is particularly dangerous, together with the liability in puerperal cases of mistaking its symptoms for those incidental to the condition of the patient, render it a dangerous agent, notwithstanding its usefulness, and if an antiseptic can be found which will afford as satisfactory results apart from the risk of toxic effects, it would doubtless promptly take the place of the sublimate.—*Med. Press*, May 12, 1886.

FRANCISCEINE.

Francisceine, according to the *British and Colonial Druggist*, is proposed as the name of a new alkaloid which has just been extracted from the Brazilian manaca root, the produce of the Franciscea uniflora and certain other species. The principle in question has a very powerful purgative and diuretic action, and is also possessed of diaphoretic and emmenagogue properties.—*Lancet*, April 10, 1886.

THE USE OF LACTATED FOOD.

Dr. J. Milner Fothergill writes concerning lactated food, which is said to consist of the purified gluten of wheat and oats, with barley diastase and malt extract combined with a special prepared milk-sugar.

Such a food can be added to milk. So prepared with milk it forms an admirable food for infants and dyspeptic persons who require very digestible aliments.

But it has a wider range of utility. The body-temperature is kept up by the combustion of grape-sugar. Grape-sugar is supplied from carbo-hydrates, either the insoluble starch or the soluble sugar. Starch forms a great portion of our food, and is converted into grape-sugar within the body. Where the system is unequal to the digestion of starch, as in feeble digestion or conditions of acute disease, then predigested starch must be furnished to the organism. Otherwise the system will perish of exhaustion, just as a fire dies out when its fuel is consumed.

Beef-tea contains nothing which can form grape-sugar, and, in fact, is a pleasant stimulating beverage or food adjunct, but without food value practically. (For what food value it has is so infinitesimal that it is not worth

counting.) But when it has added to it a food such as lactated food, it has a distinct measurable food value. Consequently, such food should be given with beef-tea, and the compound forms a valuable food.

When lactated food is placed in water hot enough to be sipped, a rapid transformation of the starch remaining in it (by the diastase it contains) goes on; and a nutritive fluid is the result which requires but a minimum of the digestive act.

Such fluid can be flavored and drank as a nutritive beverage, specially acceptable in febrile conditions. Flavored with lemon, ginger, cloves, or other flavoring agents, to give variety,—a matter far too much neglected in the treatment of the sick,—it can be largely used. Or wine, either red wine, as claret, or sherry or port, can be added to it when a little stimulant is required, and brandy when a stronger stimulant is indicated.

The resort to farinaceous matters, predigested, must become greater and greater as our knowledge of digestion and its derangements waxes larger. It is not merely in the case of feeble infants that such predigested starch and milk-sugar are indicated and useful; persons of feeble digestion require these soluble carbo-hydrates, which they can assimilate.

But an equally great matter is the feeding of persons acutely sick, and especially where there is pyrexia, who now are allowed to perish of inanition on the mistaken conviction that beef-tea is a sustaining food. It is in the sick-room that soluble carbo-hydrates have a great future before them.

VICARIOUS MENSTRUATION.

The subject treated of in Dr. Barnes's able paper read before the British Gynæcological Society on the 14th ult., has always been one of great interest. The phenomena associated with it have not always been easy to accurately appraise, they have not been of frequent occurrence, and there have generally been present accompanying circumstances that have prevented the thorough and scientific study of them.

So much has this been the case that the condition itself has been doubted, and that by a no less keen and distinguished observer than Dr. Wilks. Perhaps a good deal of the obscurity would be removed by a clear definition of the term vicarious menstruation. If by this is meant the monthly discharge of a *menstrual fluid*, we shall have to deny, with Dr. Wilks, that there is such a thing as vicarious menstruation; but if it is taken simply to mean a monthly discharge of blood taking the place of that from the uterus, many of our difficulties vanish. Dr. Barnes accepts the old definition,—*Menses per vias insolitas erumpentes; menstruatio vicaria;* as also the rendering by Leishman, "the menstrual molimen is relieved by a discharge through an unwonted channel." Dr. Barnes himself "proposed the term 'ectopic menstruation' to express the idea of menses escaping at the wrong place." We think the designation a happy one; but as yet it has to gain possession of the field. If in this definition we take the term menses to mean nothing more than a monthly flow of blood, vicarious menstruation becomes an entity about the existence of which there can be no doubt.

One of the factors in its production is increased vascular tension, manifested by turgescence of the capillary and venous system, and by the sphygmograph; the other is some obstacle to the flow of blood from the proper organ, as in the case of menstruation with absence of uterus. These cases of menstruation with absence of uterus are among the clearest cases of vicarious menstruation. Dr. Aveling seems to think not. *En passant*, we may remark that our author is a sturdy defender of the ovarian, or rather ovular, origin of menstruation.

An opportunity of generalizing is rarely neglected by Dr. Barnes, and in the present paper he acts up to this manner. To his mind menstruation is represented, in its various stages, in pregnancy, abortion, labor, and lactation. "These hemorrhages," he says, "have one characteristic in common. They are conservative in design and probably in effect." He might have generalized further, and we think it a pity he did not. He might have cast his eyes over what we are pleased to call the "lower" mammals. They do not menstruate, and thus have none of these "hemorrhages conservative in design and probably in effect," and as far as we can see they are none the worse for it. An explanation on this point is much needed. It is true that as a rule the females die early, but as a matter of fact so do the males, so that the want of conservative hemorrhages can scarcely be charged with their early doom. Leaving other classes of mammals out of the question, however, if they can with propriety be left out when they have almost everything else in common with ourselves, there really seems to be a good deal

of truth in the view he advances. "There is," he says, "a solidarity in the organism, binding the constituent organs with unity, and making them work with one consent." From this menstruation is not simply a function of the uterus and ovaries, but of the system, the due performance of which is necessary to the well-being of the individual. "If, then, menstruation is not carried out in the ordinary way . . . an attempt . . . will be made (1) by ectopic discharges of blood, (2) by discharge of mucous serum, (3) the material will be used up in other functions . . . (gestation, lactation), (4) building up new tissues . . . fat or other aberrant forms of metabolism, (5) effusions into the connective tissue, serous cavities, or in the substance of organs, (6) by exciting various neuroses." Among routes chosen for vicarious menstruation are the stomach (hæmatemesis), the nose (epistaxis), the skin ("a true bloody sweat," the bumps of erythema nodosum, ulcers, blood from sweat-glands, nipples), the conjunctiva, the intestines (diarrhœa and piles). All these forms are illustrated by numerous interesting cases.

His views are fairly, if not fully, summed up in his conclusions: "That as menstruation is a physiological necessity, so when the function cannot be performed in the ordinary way, some substitute for it must be found or mischief will ensue.

"Vicarious or supplementary functional action is a fundamental law in physiology.

"There is nothing exceptional in vicarious menstruation. Vicarious menstruation may occur under many phases. It is conservative in intent and action, lessening or averting evil."

In the discussion that took place on the paper there was very little diversity of opinion expressed. Drs. Bantock, Grigg, Ralfe, Heywood Smith, and Murphy all agreed that a discharge of blood occasionally takes place at more or less regular intervals from parts of the body other than the uterus, either along with menstruation or alternating with it, or in amenorrhœa. That the blood when discharged is true menstrual fluid was not affirmed. Dr. Heywood Smith denied that it is, and Dr. Barnes, in reply, admitted that it is not. For our part, we do not profess to know what true menstrual fluid is, or, indeed, whether there is a true menstrual fluid at all.

Perhaps the subject is not of great clinical importance, but it is of interest from a speculative point of view. Practically we are inclined to agree with Dr. Heywood Smith, when he says he does not believe in the life and death necessity for the performance of the function of menstruation.—*Med. Press*, May 12, 1886.

PITYRIASIS AND PHTHISIS.

Every physician is familiar with the cutaneous eruption occurring frequently on the chest and back of phthisical patients, which passes under the name of pityriasis versicolor, or chloasma, and the fact that it is due to the presence of a fungus allied to those which cause favus and ringworm is well known; but no one has at present suspected that its presence had any significance, or that it had any real connection with the essential lesion of phthisis. It was regarded as a fungus which took advantage, so to speak, of the exhausted and debilitated condition of the patient to take up its abode in his skin, and it occurs in other wasting diseases of a similar nature. That it is contagious and can grow on the healthy skin is shown by the story which is told of the French pathologist Lancereaux, who, wishing for a drawing of the fungus for his plates on pathological anatomy, took some skin scrapings in an envelope in his pocket, and was surprised after a time to find a plentiful crop of the parasite not only on his own chest but on that of his wife. But the fungus has now come before us in a new light as playing a prominent part in the production of tubercular phthisis. According to the researches of MM. Duguet and Héricourt, the results of which were given to the Academy of Sciences on April 19, certain cases of acute tuberculosis presented no bacilli or zoogloea forms; but when the tissues were treated with potassium (ten to forty per cent.), a delicate mycelium allied to that of microsporon was discovered; and on pushing the inquiry further it was found that this mycelium was more frequently present than the bacilli, being seen not only in the tubercles but also in the neighboring healthy tissue. Similar mycelial threads can also be found in the expectoration mixed with the bacilli. When the microsporon furfur is cultivated and injected into guinea-pigs and rabbits, these animals become, without exception, tuberculous, and the same result is obtained by insufflation into the trachea of the crusts of pityriasis. Moreover, the cultures of microsporon furfur, of tubercle produced from the fungus, and those from tubercles of man are precisely the same in character. Cultivations can be made in slightly alkalinized bouillon or in milk, when it becomes possible to distinguish an aerobic

and an anaerobic element. The former floats at the surface, and at a temperature of from 30° to 38° C. forms a thick membrane composed of bacilli. The latter is found at the bottom of the cultivation-tube as a mass of granulations and mycelium. The polymorphic character of the tubercle bacillus is thus manifest, and the opinion of Spina receives support as to the variety of the forms of microbes in tuberculosis. The whole question is an interesting one, and it cannot be said to be yet settled whether the various forms of low vegetable life to which we assign names are not phases in the life history of one species modified by chemical and physical conditions. The authors regard their discovery as important from the possibility of obtaining an attenuated virus.—*Lancet*, May 8, 1886.

ADONIDIN.

This glucoside is prepared by macerating the plant *Adonis vernalis* for ten days in hydrated alcohol (alcohol 1 part, water 2 parts). The resulting tincture is precipitated by lead subacetate. It is then filtered and condensed and treated with tannin and a few drops of ammonia, which produces adonidin tannate, which is then washed with water and decomposed with zinc oxide and alcohol. Adonidin results in an impure state, and is purified by successive crystallizations in alcoholized ether. It is a bitter-tasting, amorphous, clear yellow powder, insoluble in ether or chloroform, slightly soluble in water, most soluble in alcohol. Muriatic acid colors it gray, nitric acid yellow, sulphuric acid red. Every part of the plant contains it. Ten kilogrammes of the plant yield two grammes of adonidin. It has all the advantages of digitalis, without its cumulative action.—*National Druggist*, May 7, 1886.

A CLEANLY AND ECONOMICAL METHOD OF APPLYING OINTMENTS.

At a recent meeting of the Manchester Medical Society, Dr. Brooke (*Brit. Med. Journ.*, May 20, 1886) exhibited a number of ointments, prepared with a solid base, composed of cacao butter, wax, and oil, or lanolin, and cast into the form of sticks ("salve-sticks"). He had found them particularly useful in making applications to the face and hands, since, their melting-point being high, they did not run at the temperature of the body, as did ointments prepared with the ordinary bases; and, when dusted over with powder, they were practically invisible. When covered with Mather's, or Seabury and Johnson's adhesive rubber (waterproof) plaster, they offered a mode of applying remedies to the skin which was more durable than the Unna-Beiersdorf plasters, and less expensive. With this protective covering, they were especially applicable to the treatment of psoriasis by chrysarobin, and possessed several advantages over the methods of Pick, Auspitz, and Besnier, in that the fatty menstruum was preserved; they did not need such frequent renewal; they were more readily applied, and did not cause any disagreeable dragging on the skin and hairs. The fear of staining the clothing was completely removed, and the patient might, moreover, bathe without disturbing the dressing. They were supplied enclosed in small cases, like those used for cosmetics, so that they could be conveniently carried in the pocket.

PHOTOGRAPHING THE UTERINE CAVITY.

According to the *Lancet* for May 15, 1886, a Swiss physician describes a plan of introducing wadding tampons and laminaria tents into the uterus, by which he has succeeded in dilating the organ to such an extent as to be able, by means of reflectors, to get a complete view of the whole cavity in cases of carcinoma, fibrous polypi, fibromata, and endometritis. Not being content with ocular inspection, he has also contrived to obtain photographs of the cavity. New inventions for uterine exploration, medication, and instrumentation are often of a somewhat hazardous nature, but we tremble to think of the future of some female patients if photographing the interior of the uterus should ever become one of the medical fashions of the day.

Hon. David A. Wells's third paper of the series, entitled "An Economic Study of Mexico," now running through *The Popular Science Monthly*, will appear in the forthcoming June number. The series will close with the fourth paper, and it promises, when completed, to be the fullest, as it will unquestionably be the most accurate summary of the real condition of affairs, industrial, commercial, and political, in Mexico, that has appeared since the Mexican war.